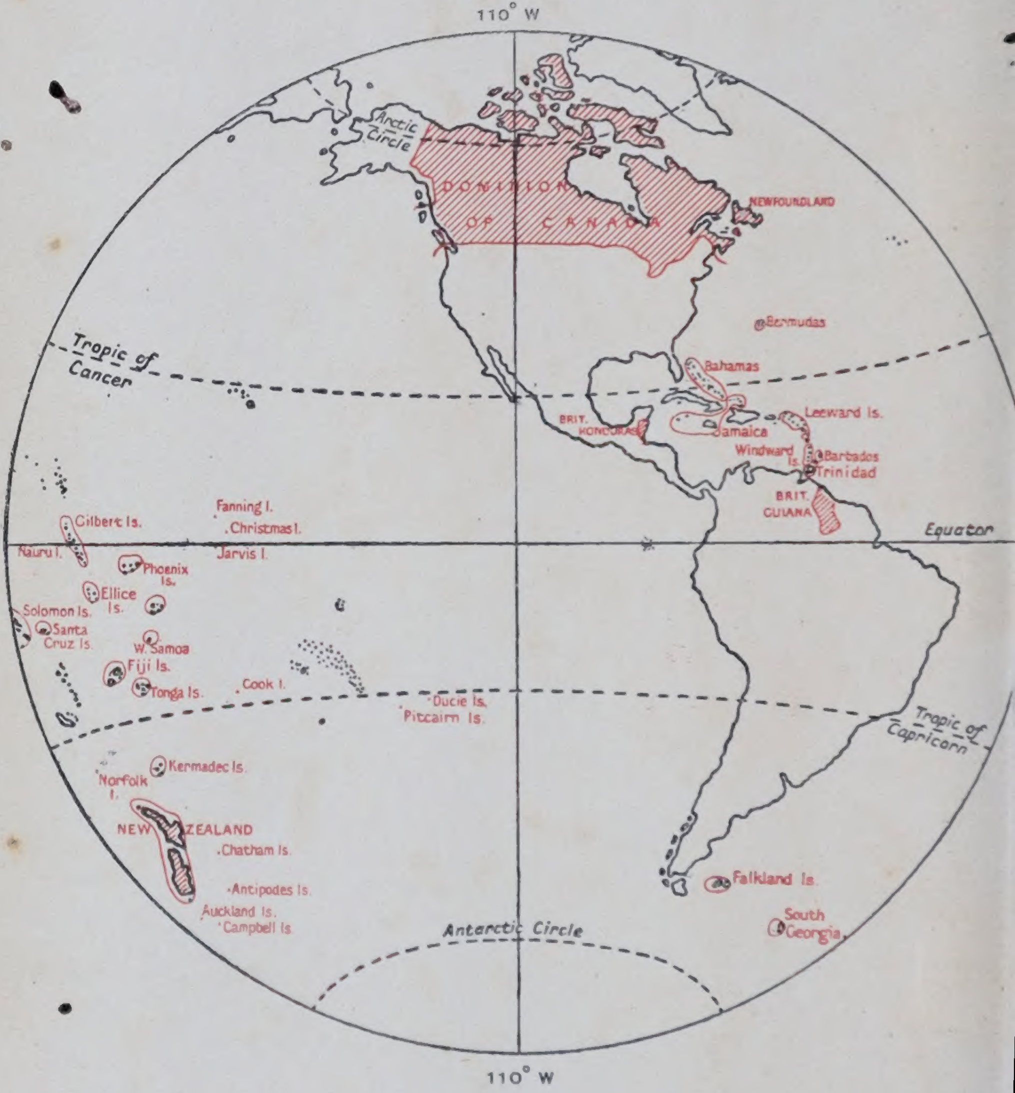
ELL'S INTERMEDIATE GEOGRA

THE BRITISH EMPIRE

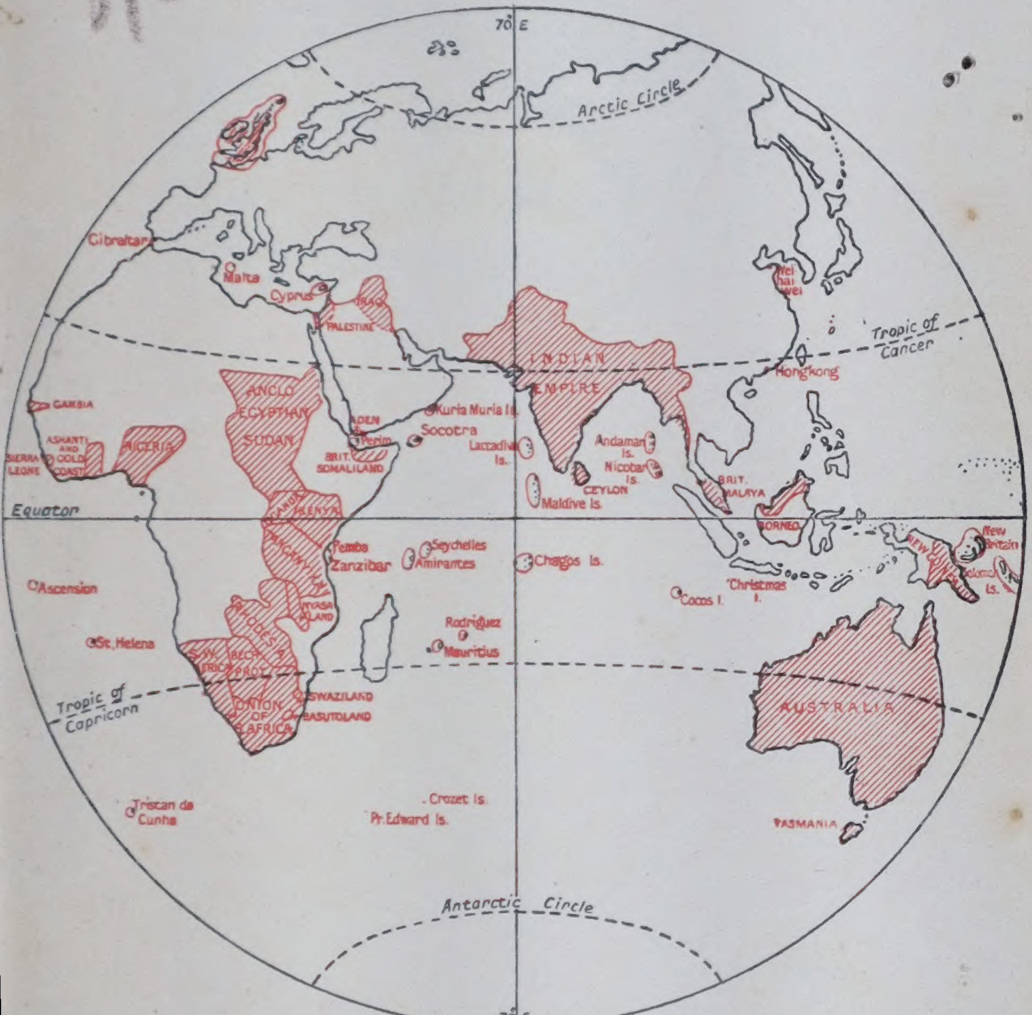
by A. WILMORE, D.Sc.

S LTD LONDON

G/C 64


110° W
Arctic Circle
DOMINION OF CANADA
NEWFOUNDLAND
Bermudas
Tropic of Cancer
Bahamas
BRIT. HONDURAS
Jamaica
Leeward Is.
Windward Is.
Barbados
Trinidad
BRIT. GUIANA
Equator
Fanning I.
Christmas I.
Jarvis I.
Gilbert Is.
Nauru I.
Phoenix Is.
Ellice Is.
Solomon Is.
Santa Cruz Is.
W. Samoa
Fiji Is.
Tonga Is.
Cook I.
Ducie Is.
Pitcairn Is.
Tropic of Capricorn
Kermadec Is.
Norfolk I.
NEW ZEALAND
Chatham Is.
Antipodes Is.
Auckland Is.
Campbell Is.
Falkland Is.
South Georgia
Antarctic Circle
110° W

Slc. 64


70° E
Arctic Circle
Gibraltar
Malta
Cyprus
IRAQ
PALESTINE
Wei hai wei
Tropic of Cancer
INDIAN EMPIRE
Hongkong
GAMBIA
ANGLO EGYPTIAN SUDAN
ADEN
Perim
Kuria Muria Is.
Socotra
ASHANTI AND GOLD COAST
SIERRA LEONE
NIGERIA
BRIT. SOMALILAND
Laccadive Is.
Andaman Is.
Nicobar Is.
CEYLON
Maldive Is.
BRIT. MALAYA
Equator
UGANDA
KENYA
BORNEO
New Britain
NEW GUINEA
Solomon Is.
Pemba
Zanzibar
TANGANYIKA
Seychelles
Amirantes
Chagos Is.
Ascension
Christmas I.
Cocos I.
NYASALAND
RHODESIA
Rodriguez
Mauritius
St. Helena
S.W. AFRICA
BECH. PROT.
SWAZILAND
BASUTOLAND
UNION OF S. AFRICA
Tropic of Capricorn
AUSTRALIA
Tristan da Cunha
Crozet Is.
Pr. Edward Is.
TASMANIA
Antarctic Circle
70° E

BELL'S INTERMEDIATE GEOGRAPHIES

R. B. A. N. M'S EDUCATIONAL CHARITIES.
No. 9.203
Date 1.4.31
BANGALORE.

THE BRITISH EMPIRE

BELL'S INTERMEDIATE GEOGRAPHIES

A FOUR-YEAR COURSE FOR SCHOOLS

1. THE BRITISH ISLES.
(*In preparation*)
By A. Wilmore, D.Sc.

2. THE BRITISH EMPIRE.
By A. Wilmore, D.Sc.

3. THE WORLD.
By J. Murray, M.A.

4. EXPERIMENTAL AND OPEN-AIR GEOGRAPHY.
(*In preparation*)
By A. Wilmore, D.Sc.

G. BELL & SONS, LTD., LONDON

BELL'S INTERMEDIATE GEOGRAPHIES

THE BRITISH EMPIRE

BY

ALBERT WILMORE, D.Sc. (Lond.)

> "*We are members one of another*"
> (St Paul)

LONDON
G. BELL AND SONS, LTD.
1927

MULLER PATEN BROS.
BOOKSELLERS, STATIONERS, AND AGENTS
BRIGADE ROAD BANGALORE

1613
V

Printed in Great Britain by
NEILL & Co., LTD., EDINBURGH.

PREFACE

This book is written for boys and girls of Great Britain, Ireland, and the British Dominions across the seas. It is of the standard that can readily be grasped by students of about twelve to fourteen years; and it is hoped that they, in the different British lands, will learn, by its means, to understand and respect each other all the more.

Beginning with the "Old Country"—the "Home Land," —the young student is taken round the world, and step by step he makes the acquaintance of the units of our Great Empire, in the continents, in the mighty oceans, and in the great mid-land seas. In his journey he learns the more important facts about the structure of each part, the climate, the work of the people, the productions, the contributions to the common stock of good things, the people themselves, and such ideas of the government as fittingly belong to this stage of study.

Many of the component parts of our Great Commonwealth have the features, climate, and other attributes of the continents of which they form a part, and it is recommended that the students should also read *A Geography of the World*, by Mr John Murray, in this course.

The boys and girls should have access to a fairly good atlas, which need not be very expensive, also to some good classroom maps; and no doubt the teacher will draw many diagram maps in the ways which are now so well known among teachers of geography. It is strongly urged that the students should make use from time to time of such books as *The Statesman's Year Book* and *Whitaker's Almanack*, and so learn to know the use of some standard books of reference. In some cases these books will be found in the School Library; they can always be seen at a good Public Library. At the end of the book there is a glossary of some of the more unusual words, which should help the students over many a difficult patch in his own reading, in the writing of the answers, and the working of the exercises.

The final word of the writer to the young student is that he should draw plenty of his own maps, collect as many things from all over the Empire as possible, and arrange and classify them well; and, above all, that he should worry his class teacher as little as possible, but by working in conjunction with his fellow students and sometimes on his own account make it a thorough and efficient study.

CONTENTS

CHAP.		PAGE
I.	INTRODUCTION	1
II.	THE BRITISH ISLES—THE HOME LAND—THE MOTHER COUNTRY	7
III.	BRITISH DOMINIONS ON THE MEDITERRANEAN ROUTE	16
IV.	BRITISH DOMINIONS IN WESTERN ASIA	21
V.	INDIA—CEYLON—BURMA	27
VI.	INDIA (*continued*)	34
VII.	BRITISH MALAYA: THE EMPIRE IN CHINA	43
VIII.	AUSTRALIA	49
IX.	AUSTRALIA (*continued*)	57
X.	NEW ZEALAND	63
XI.	THE BRITISH EMPIRE IN THE PACIFIC OCEAN	68
XII.	CANADA	72
XIII.	CANADA (*continued*)	77
XIV.	NEWFOUNDLAND	84
XV.	THE EMPIRE IN TROPICAL AMERICA	88
XVI.	THE EMPIRE IN THE ATLANTIC OCEAN	93
XVII.	THE UNION OF SOUTH AFRICA	96
XVIII.	THE SOUTHERN TROPICAL DOMINIONS IN AFRICA	105
XIX.	THE NORTH-EASTERN TROPICAL DOMINIONS IN AFRICA	109

CHAP. PAGE
XX. BRITISH WEST AFRICA 115
XXI. THE EMPIRE IN THE INDIAN OCEAN . . 121
XXII. THE PRODUCTS OF THE EMPIRE: FOODS . 126
XXIII. THE PRODUCTS OF THE EMPIRE: CLOTHING MATERIALS 133
XXIV. SOME OTHER PLANT PRODUCTS OF THE EMPIRE 140
XXV. THE MINERAL WEALTH OF THE EMPIRE . 148
XXVI. THE EMPIRE: TRANSPORT AND COMMUNICATIONS 154
XXVII. THE GOVERNMENT OF THE EMPIRE . . 164
A SUMMARY TABLE OF THE EMPIRE: AREA AND POPULATION 170
GLOSSARY 173
INDEX 177

THE BRITISH EMPIRE

CHAPTER I

INTRODUCTION

THERE is in the world a great family of nations, all of which have the same flag and are under the same King. This family is by far the greatest the world has ever seen: it includes more than one-fourth of the peoples of the world, and occupies more than one-fourth of the land surface of the globe. It is called the **British Empire,** or the **British Commonwealth.**

The dominions of this Empire are scattered over every part of the earth's surface—in the Old World and in the New, in the great continents, and on islands in the vast oceans. Some of these lands are in the hottest parts of the earth, while others have ice and snow on the ground for the greater part of the year. Some British lands have four very distinct seasons—spring, summer, autumn, and winter; but in others it is almost equally hot all the year round, and there is nothing that can be called summer or winter.

It has long been a proud boast of the British peoples that the sun is always shining upon some part of their dominions, and this is quite true. When a boy in the Mother Country is having his midday meal at one o'clock, a boy in British Columbia is still in bed, for it is only five o'clock in the morning there; at the same moment a boy in New Zealand is in the middle of the following night, and his watch reads 12.30 a.m. The New Zealand boy has already spent the day which the British Columbia boy has not yet really begun.

Let us look at a number of these parts of the British Commonwealth from another point of view. The Dominion of Canada is about thirty times the size of the British Isles, whilst Australia (the Island Continent) has about twenty-four times their area. The island of Singapore in the Far East is not quite as big as the county of Middlesex in England; whilst the Rock of Gibraltar, at the entrance to the Mediterranean Sea, is less than two square miles in extent, or about twice the size of the City of London. From the Table of British Dominions, on pages 170–172, you will see what a great range of population and of area we find in the British Empire.

Peoples.—Because the parts of the British Empire are situated in such widely separated regions and have such different climates we expect to find in them peoples of different races and habits, languages, and religions. Most of the inhabitants of the British Isles, Canada, Newfoundland, Australia, and New Zealand belong to the European race, but in many British lands there are far fewer Europeans than people of other races. In the West African lands, for example, and in some of the lands of Central Africa, nearly all the people are Negroes, and the Europeans usually stay there for a few years only. In the Indian Empire there are many types of people, some in the far north not very different from Europeans in build and colour, whilst in the south the people are quite dark-skinned. There are about 65,000,000 people of European descent in the whole Empire out of a total population of about 460,000,000—or roughly one in seven.[1]

Languages.—Many languages are spoken by the peoples of the Empire. English is largely used in the self-governing dominions, and this language is also widely used in the schools, the banks, the trading and shipping offices in many of the other dominions. Dutch is much used in British South Africa, French in some parts of Eastern Canada and the West Indies, Spanish in some of the West Indies and Honduras, and Italian in Malta. There are very many "native languages" used in Africa, India, Malaya, and the islands of the Pacific Ocean. It is probable that English is used by about 80,000,000 people out of the total of 460,000,000 in the whole Empire—or by a little more than one in six.

Religions.—There are also many different religions professed by the people of this great Commonwealth. About 200,000,000 hold the Hindu religion, 100,000,000 are Mohammedans, 80,000,000 are Christians, 12,000,000 are Buddhists, and of the rest there are perhaps 100,000 Parsees in India, and a million Jews in the Empire.

From all this we see what a great variety of points of view there must be in the British Commonwealth, and how important it is that boys and girls in all parts of it should learn to understand each other. It is claimed for this great Empire that the aim of its parts is to help one another and at the same time to make a better world. This can only come about if we all bear in mind the differences in race and habit, language and religion, in the various dominions.

---

[1] Some mention of the native races will generally be found in the sections dealing with the different dominions of the Empire.

Productions of the Empire.—We shall learn something in the following chapters of the wonderful variety of productions of the different parts of the British Commonwealth. It will be enough to state here that all the needs of man can be grown, or won from the ground, or made, somewhere in the British Dominions; there would seem to be no food, or material for clothing, or source of power, or substance needed for learning or pleasure, which cannot be produced in some part of the Empire.

It is equally true to say that no one of the dominions can fully support itself: every British land needs something from other British lands. Every part has something to spare for the rest, or does some special service for the whole; and over and over again we shall see how one part is dependent upon the others. We cannot repeat too often the great truth which is printed as a sort of motto at the beginning of this book,—"We are members one of another."

Communications and Routes.—It is quite clear from all this how important it is that the British dominions should keep in close touch with each other. The British Isles—the Mother Country and the centre of the whole system—are in the very middle of the land of the world; there is no place more conveniently situated for common trade with each part, and as a place where people from all the dominions can come together to talk over all the problems that must arise from time to time in such a vast concern. For this reason the land routes, the sea ways, and the air routes must be second to none in the world, and there must be a first-rate service of overland and oceanic telegraphic cables, and of powerful wireless stations.

QUESTIONS AND EXERCISES

CHAPTER I

1. How many self-governing dominions can you find on the map? What are their names? (Refer to the table on pages 170–172.)
2. Arrange the self-governing dominions in order of size, judging from the map. Use transparent squared paper if necessary.
3. Look at the table given on pages 170–172, and see if you can find every unit of the British Commonwealth on the map.
4. See the table on pages 170–172 again, and find if the order of size is the same as the order of totals of population.
5. In which parts of the British Commonwealth have you any relatives or friends? Find, in each case, how long it usually takes a letter to come from them to you. Are their postage-stamps like yours?
6. Make a collection of (*a*) stamps, (*b*) coins, (*c*) picture post-cards of the British Commonwealth.
7. Which of the British Dominions send teams to play each other at (*a*) cricket, (*b*) rugby football, (*c*) association football?
8. During the months of October to March, 1924–25, two teams of English cricketers were touring—one in Australia, the other in South Africa. Explain why they were playing there during the English winter.
9. When England and Australia are playing the Cricket Test matches at Adelaide, Melbourne, or Sydney, it is possible to see the result of part of a day's play in the London morning papers of the same day. Explain this.
10. See Question 9. Explain why it is not possible to do the same with the Test matches played at Cape Town, Johannesburg, or Durban.
11. Find in your atlas all the towns mentioned in Questions 9 and 10.

12. Australia has three different times—for West Australia, eight hours fast; South Australia, nine and a half hours fast; and for Queensland, New South Wales, and Victoria, ten hours fast. Which of these times does Tasmania use, and why? Why is there a difference of *half an hour* between the times of South Australia and Victoria? Which time is used in the northern territory of Australia?
13. What time is it in New Zealand and in the Fiji Islands when it is midday at Greenwich?
14. There are five different times used in British North America: these are four, five, six, seven, and eight hours behind Greenwich time. What time is it at the following places when it is twelve noon at Greenwich: (*a*) St John's, Newfoundland, and Halifax, Nova Scotia; (*b*) Montreal and Toronto; (*c*) Port Arthur and Winnipeg; (*d*) Regina and Calgary; (*e*) Vancouver and Prince Rupert?
15. Find Gibraltar and Singapore on the world map, and see also the maps on pages 17 and 44. Why are these places so important?
16. Why is the sea so very important to the British Commonwealth, and why is it necessary for the British Isles to be in the front rank of shipbuilding countries?
17. How many people are there to the square mile in: (*a*) the British Isles; (*b*) Newfoundland; (*c*) Canada; (*d*) Union of South Africa; (*e*) Australia; (*f*) New Zealand; (*g*) India? (Use the table on pages 170–172.)
18. Which of the three great oceans contains the greatest number of islands which form part of the British Commonwealth? Consult a good atlas.

R. B. A. N. M'S EDUCATIONAL CHARITIES.
No.......................
Date.......................
BANGALORE.

CHAPTER II

THE BRITISH ISLES: THE HOME LAND: THE MOTHER COUNTRY

Lying off the north-west coast of Europe is a group of islands, two larger and hundreds of smaller ones, and from them have spread the people who laid the foundations of the great British Commonwealth. The larger islands are Great Britain and Ireland, the latter being a little more than one-third the size of the former. The area of them all is nearly 122,000 square miles, an area which is often used for comparison in describing other British dominions.

There are no very high mountains in the British Isles, such as are found in India, British Columbia, New Zealand, and Africa, but there is much beautiful hilly country. Most of the northern and western parts of the islands have rugged uplands of great charm; the middle of Scotland, the east and south of England, and the middle of Ireland are mostly lowlands, with much rich soil, good for farming.

In the northern half of Scotland are "The Highlands of Scotland." Here is a tableland of hard rocks, cut up by deep glens in which are rushing streams and beautiful lakes—"land of the mountain and the flood," as Sir Walter Scott so well described it. In the southern half of Scotland there are two distinct kinds of country—the lowlands and the southern uplands. The lowlands contain fertile, well-farmed plains and rolling country, and coal-fields which are the foundation of great industries. The southern uplands, nearer the English border, consist of broad moors, with river valleys which are wider than the Highland glens.

The Highlands of Scotland and the southern uplands really continue into the north of Ireland. This island consists broadly of three divisions, chiefly uplands in the north, lowlands in the middle, stretching from sea to sea, and uplands again in the south. Some of these southern uplands of Ireland are like the Welsh hills and others are similar to the hills of Devon and Cornwall.

Wales is almost entirely a land of hills and deep valleys. North Wales is very beautiful, and provides a glorious holiday ground for the people of the great industrial regions not far away.

England has three main groups of higher hills—the Pennine moorlands, which form the "backbone" of the north of England for 100 miles; the beautiful Lake District hills of Cumberland, Westmorland, and North Lancashire; and the moorlands of West Somerset, Devon, and Cornwall. An interesting curved line may be drawn from Newcastle, round the southern end of the Pennines, to the ancient city of Exeter. East of this line lie the English lowlands, where there is very little land which rises to 1000 feet above sea-level.

The western coasts of the British Isles are mainly rocky and rugged, and there is an almost endless series of fine openings. The east coast is not so much cut up, but even on this side there are many inlets which are of great use to shipping. The south coast also has many useful openings, and one famous and beautiful island—the Isle of Wight. This coast faces the continent of Europe, and regular services of steamers cross the English Channel and the Strait of Dover. Close to the French coast there is a group of rocky islands called the Channel Islands. These were part of the old Duchy of Normandy, and are all that is left to Britain of the French lands which formerly belonged to the British Crown. There are numerous islands off the western coasts both of Great Britain and Ireland, and two well-known groups—the Orkneys and the Shetlands—lie away to the north of Scotland. Some of these islands are well-known holiday resorts, and the busy mining and factory districts of the bigger islands are fortunate in having them so near at hand.

The British Isles are surrounded by seas whose water is warmer than is usual so far away from the Equator. Moist winds often blow from the Atlantic Ocean, and bring a good deal of warm rain. Hence, both Great Britain and Ireland are rainy lands, with a warmer climate than would be expected from their latitude. There is no region in the world, so far from the Equator, with so warm a climate. The west of the British Isles is generally wetter than the east, thus resembling New Zealand—that other island group on the opposite side of the globe. The west side, also, has warmer winters and cooler summers than the east, and it follows that such crops as wheat and barley grow better on the eastern side, whilst the west is more famous for grass lands.

The British Isles contain a wonderful variety of rocks, from which are obtained building stones and many other things useful to man. Among the mineral wealth the most important things are rich supplies of coal, ores of iron, and common salt. Cheap coal, plenty of iron-ore, and hundreds of little rivers which never dry up, were among the factors which made the great manufacturing industries for which the British Isles are so famous.

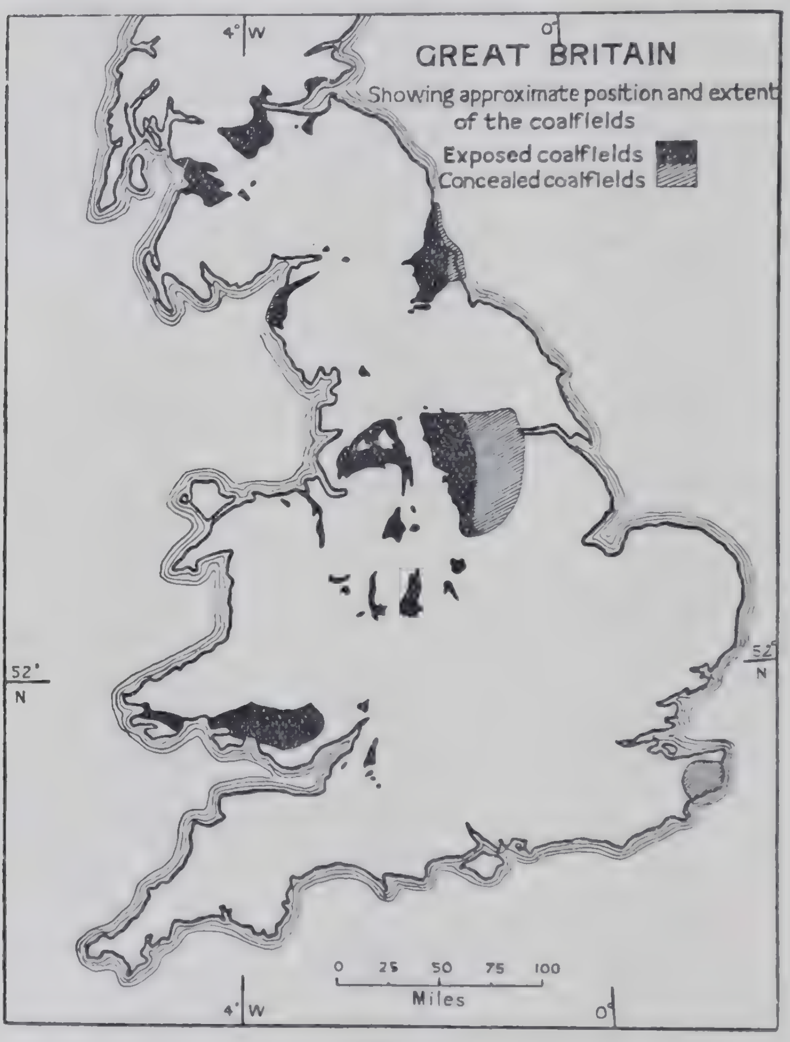


FIG. 1.

There is much skilful and very successful farming, but Great Britain and Ireland only produce about one-fifth of the food needed by their people: for the other four-fifths they look abroad, and more and more they are learning to look to the British Dominions. There are 46,000,000 people in the British Isles, great numbers of whom are engaged in mines, manufactures, and commerce. We may mention first the mining of coal and the making of many wonderful and useful things from the coal itself. In coal-mining the British Isles come second in the world. In the next place we may put the mining and smelting of iron-ore and the making of all sorts of iron and steel goods and machinery. In iron-smelting the British Isles come third in the world. Thirdly, there is the great group of textile manufactures, in which the British Isles stand first. Wool, chiefly in the West Riding of Yorkshire; cotton, chiefly in south and east Lancashire; and linen, jute, silk, and rayon or artificial silk in many other districts, employ vast numbers of people. The cotton industry is the greatest manufacturing industry in the world—a remarkable thing when we remember that all the raw cotton must come from abroad and that four-fifths of the manufactured cotton goods must be sold abroad. The cotton workers are looking more and more to the British Dominions for supplies of raw cotton and for markets where they can sell their high-class finished goods.

Of course, there are many other great industries in the British Isles, for here is one of the busiest of the world's workshops. A great many people are engaged in buying and selling things made in the British Isles and grown and made elsewhere; the great seaports of this busy land are world markets, where a vast share of the produce of the world is bought and sold.

It has already been stated that there are 46,000,000 people in the British Isles: this is double the combined populations of Canada, Australia, New Zealand, and the Union of South Africa. From this it is clear that there must be many thickly peopled districts. These are London and its surrounding district, South Wales, the Birmingham region, the Manchester and Liverpool region (the most densely peopled of all), the Sheffield, Leeds, and Bradford region, the Newcastle region, and the Midland Valley of Scotland.

The following are the greatest cities of the British Isles, with their populations as given by the Census of 1921:—

England

London	7,467,168	Bradford	285,979
Birmingham	919,438	Newcastle	278,400
Liverpool	803,118	Stoke-on-Trent	273,238
Manchester	730,551	Nottingham	266,400
Sheffield	519,239	Portsmouth	247,343
Leeds	458,320	Salford	239,100
Bristol	376,975	Leicester	234,190
Hull	290,808	Plymouth	209,857

Manchester and Salford cannot be distinguished from each other by a stranger, and Stretford is almost equally a part of Manchester. If these are added together the population of Greater Manchester is:—

$$730{,}551 + 239{,}100 + 46{,}535 = 1{,}016{,}186.$$

Liverpool is only separated from Birkenhead and Wallasey by the River Mersey, and Bootle would seem to a stranger to be a part of Liverpool. If these are added together the population of Greater Liverpool is:—

803,118 + 145,592 + 77,800 + 89,600 = 1,116,110.

Newcastle-upon-Tyne and Gateshead are separated by the River Tyne. Add these together as one great city and the population is:—

278,400 + 124,514 = 402,914.

Scotland	Glasgow	1,034,069
	Edinburgh	420,281
Northern Ireland	Belfast	386,949
Irish Free State	Dublin	304,802
Wales	Cardiff	219,688

In addition to these there are thirty-two towns in England, Wales, and Scotland with populations of between 100,000 and 200,000; these are: Aberdeen, Birkenhead, Blackburn, Blackpool, Bolton (Lancs), Brighton, Burnley, Coventry, Croydon, Derby, Dundee, East Ham, Gateshead, Halifax, Huddersfield, Leyton, Middlesbrough, Norwich, Oldham, Preston, Rhondda, St Helens, Southampton, South Shields, Southend-on-Sea, Stockport, Sunderland, Swansea, Tottenham, Walthamstow, Willesden, Wolverhampton. There are also numerous cities and towns with populations of less than 100,000, but which are famous in history, or as seats of learning. The following may be quoted: Canterbury, York, Oxford, Cambridge, Exeter, Lincoln, Durham, Chester, and Carlisle in England; St Andrews, Perth, and Stirling in Scotland; Londonderry in Northern Ireland; and Cork, Waterford, and Limerick in the Irish Free State.

QUESTIONS AND EXERCISES

CHAPTER II

1. By using an atlas find the distance in miles from London to Liverpool, London to Edinburgh, Southampton to Manchester, and Hull to Bristol.
2. Write down the following in order of area in square miles: England, Wales, Scotland, Northern Ireland, the Irish Free State. Now write them down in order of population. Is the latter the same as the order of area?
3. Express the area of each of the states named in Question 2 as a percentage of the total area of the British Isles. Do the same with the populations.
4. Find on the map the positions of the towns and cities mentioned on pages 12 and 13.
5. For what are the following pairs of cities and towns noted: Canterbury and York, Lincoln and Durham, Oxford and Cambridge, Edinburgh and Dublin, Glasgow and Belfast, Liverpool and Southampton?
6. How does the south-east of England differ from the north-west in structure, in climate, and in agriculture?
7. Compare Scotland with Ireland in build, in climate, in area and population, and in agriculture.
8. (*a*) *For Students in Great Britain and Ireland.*—What foods and raw materials from the British Empire seem to you to be in regular demand in your district? From which parts of the Empire do they come?

   (*b*) *For Students in other parts of the Empire.*—Write a list of the manufactured goods which you commonly use and which are made in the British Isles. In what towns or districts in those islands are they made, from which ports are they sent out, and to which ports in the Dominions do they come?
9. What advantages have the British Isles as a manufacturing country?

10. The British Isles were almost self-supporting in the matter of the more important foods one hundred and twenty years ago. Why is this no longer the case? Enumerate ten common articles of food which the British Isles cannot produce owing to the climate not being of the right kind.

CHAPTER III

BRITISH DOMINIONS ON THE MEDITERRANEAN ROUTE

THE great inland sea which we call the Mediterranean has been important all through history. On its shores have lived some of the most famous peoples of the world, and round it and on it many of the greatest events in history have taken place. It penetrates for 2000 miles into the great land mass of the Old World, between the continents of Europe, Asia, and Africa. At its eastern end it comes within 100 miles of the Red Sea, which is another mid-land sea opening into the great Indian Ocean. A narrow piece of sandy desert, called the Isthmus of Suez, is the only barrier to one of the greatest world routes connecting the busy West with the thickly peopled East.

In the year 1850 it was a common thing for travellers to go to Alexandria by ship; then there was a journey of 50 miles in a canal boat, followed by a drive across a stretch of desert in an old-fashioned conveyance. At Suez the Red Sea was reached, and here began the voyage into Eastern seas. This saved over 4500 miles on the journey to Bombay, compared with going round South Africa. It was natural that the idea of a ship canal should often be discussed, but for a long time the difficulties seemed too great. It was a great Frenchman, Ferdinand de Lesseps, who overcame these obstacles, and, owing to his untiring efforts, the Suez Canal was opened in 1869.

The canal is open to ships of all nations, and over 5000 vessels passed through in 1925, over 60 per cent. of them being British. It is quite clear that the canal and the Mediterranean-Red Sea route are of the greatest possible importance to the British Empire. The canal itself is owned by a company, and the British Government holds 44 per cent. of the shares: these were purchased in 1875.

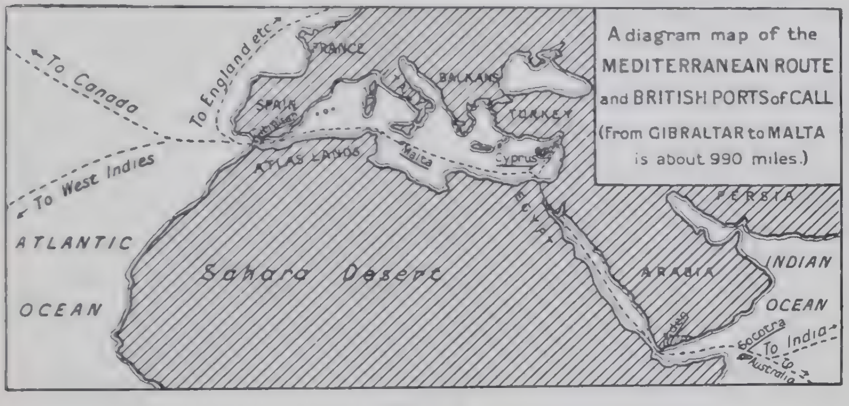


FIG. 2.

The British Empire has a series of stations at convenient points for ship repairs, coal and oil bunkering, and as ports of call. These are Gibraltar, at the Atlantic entrance to the Mediterranean; Malta, in the middle of the great sea; Perim, at the narrow entrance to the Red Sea; and Aden, about 100 miles away. These are only small dominions, but they are very important indeed in the service and protection they render to the shipping of the Empire.

Gibraltar is only 2 square miles in area, and the population is 21,000. Malta is the largest of a group of islands which have a total area of 122 square miles, with a population of 225,000. Valetta, the capital, has a splendid harbour, and is one of the most important ports of call in the world. The Maltese islands are fertile and produce the usual Mediterranean products, but the population is so dense that much food has to be imported. The people are by race akin to the Italians and the Mediterranean peoples of northern Africa. The languages spoken are Maltese, Italian, and English. Malta enjoys a large measure of self-government. The climate of Gibraltar and of Malta is of that type which we call "Mediterranean," and which is to be found on the western sides of all the great continents in latitude 30–40°: most of the rain comes in the mild winters, and the summers are dry and hot. There is very little rain at Port Said (at the entrance to the Suez Canal), at Perim, or at Aden: they are in the desert region. Perim, a small island at the southern entrance to the Red Sea, has a lighthouse and is a bunkering station. Aden is a free port, and serves as an emporium for the neighbouring African and Arabian regions. It is under the Government of Bombay, one of the Presidencies of India. See page 27.

Cyprus is much larger than the others, having an area of nearly 3600 square miles, or almost half the size of Wales. It has two parallel ranges of high mountains near its northern and southern coasts, and between them is the Middle Plain, called the "Messaria." The British are doing much to improve the agriculture and to make the most of its fertile soil. Cyprus produces olives, grapes, oranges, pomegranates, raw silk, and cotton. It stands away from the track of the main steamship lines, and it has few good, natural harbours. Harbour works have been carried out at Famagusta, and a good port has been made;

from here there are regular services of steamers to Italy and Egypt. The population of the island is little more than 300,000, so that it is by no means overcrowded. The people are mainly Greeks and Turks, the former being in the majority.

QUESTIONS AND EXERCISES

CHAPTER III

1. What seas are branches of the Mediterranean? What countries can be reached by sailing through these branch seas?
2. Find from a good map how far it is from Gibraltar to Malta, from Malta to Port Said, from Port Said to Aden, and from Gibraltar to Aden.
3. What are the chief productions which the Mediterranean countries send to the British Isles? Can any other British Dominions supply those products?
4. Here is the average monthly rainfall (in inches) for four places named in Chapter III:—

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Gibraltar	4·3	3·5	4·4	2·8	1·7	0·4	0·0	0·1	1·2	3·3	4·5	6·1	32·3
Malta	3·3	2·0	1·6	0·9	0·5	0·1	0·1	0·2	1·4	3·4	3·3	4·4	21·2
Port Said	0·9	0·4	0·4	0·2	0·0	0·0	0·0	0·0	0·0	0·1	0·5	0·8	3·3
Aden	0·3	0·2	0·7	0·3	0·2	0·0	0·0	0·1	0·2	0·0	0·1	0·1	2·2

(*a*) Draw a graph of these results.
(*b*) Explain why Malta has less rain than Gibraltar.
(*c*) Divide the year into two periods—a wet six months and a dry six months—and find for each place what percentage of the total rainfall comes in the rainy six months.
(*d*) From the records of the four places, which, on the whole, is the wettest month and which the driest?

5. The saltiness or salinity of a sea is usually expressed as the number of parts by weight of salt in 1000 parts of sea-water. The salinity of the Atlantic near the Strait of Gibraltar is about 35, that of the western Mediterranean about 36, and that of the eastern Mediterranean about 37. Can you explain why there is this difference?

CHAPTER IV

BRITISH DOMINIONS IN WESTERN ASIA

ASIA is the largest continent, and it will be convenient to take the British dominions in it in groups. They occupy in all about two million square miles, or about twenty-five times the area of Britain. Our first group includes those in the west of the great continent. The more important of these are "Mandated Territories"; that is, the League of Nations placed them under the control of the British after the Great War of 1914–18.

Palestine and beyond the **River Jordan**.—This historic land was the home of the Jews and the region of many of the scenes of the Bible. A land with which are associated the names of Moses, David, Elijah, Isaiah, St John the Baptist, St Peter, and St Paul can never be forgotten. Jesus Christ was born at Bethlehem in the south, grew to manhood in a village in the north, and His ministry was carried out entirely in that land. He was crucified at its capital, Jerusalem.

Palestine itself has an area of 9000 square miles, that is a little larger than Wales, twice the size of Jamaica, or four times the area of Prince Edward Island. We can distinguish four distinct regions. Bordering the Mediterranean Sea is a coastal plain, well known in many a Bible story; farther inland is a plateau of limestone, with deep

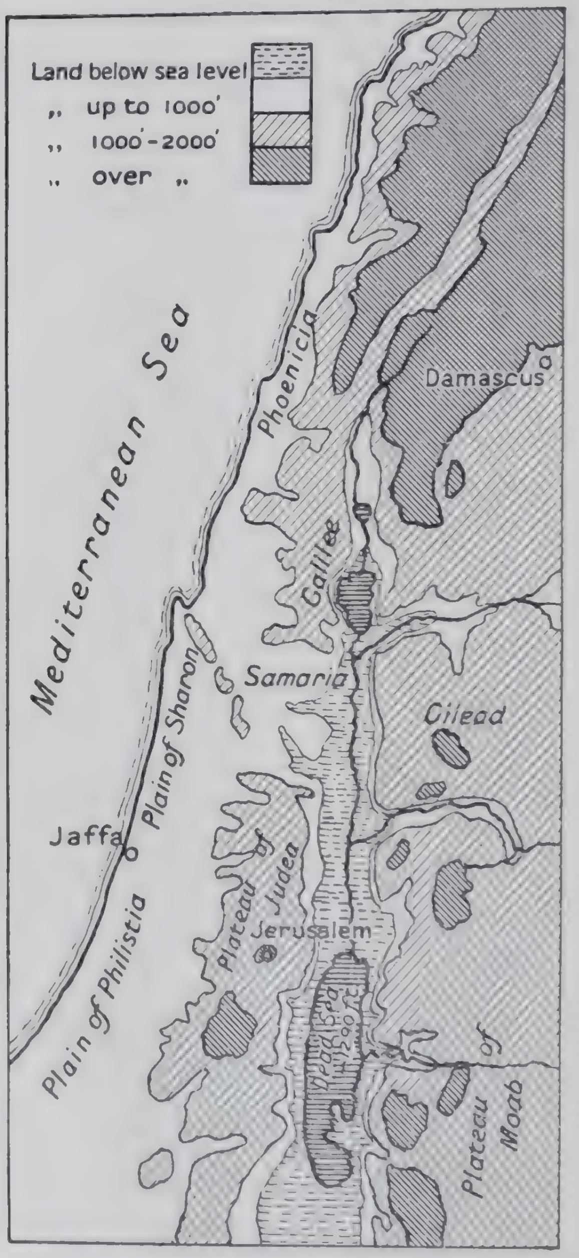


Fig. 3.—A Diagram Map of the structure of Palestine.

valleys such as often occur in limestone country; here the river beds are dry in the rainless summer. This is the rocky land of Judea and Samaria, and on it stands the famous city of Jerusalem. Still farther from the Mediterranean Sea is the trough or "rift valley" in which runs the famous River Jordan and in which lies the Dead Sea. This trough is far below the level of the Mediterranean Sea. Beyond this is the rocky land of Moab, where very little rain falls and the Arabian Desert begins. The Bible mentions "the former and latter rains," and in many places there are references to the blessings of water. "Thou visitest the earth and waterest it: Thou greatly enrichest it with the River of God which is full of water" (Psalm lxv. 9).

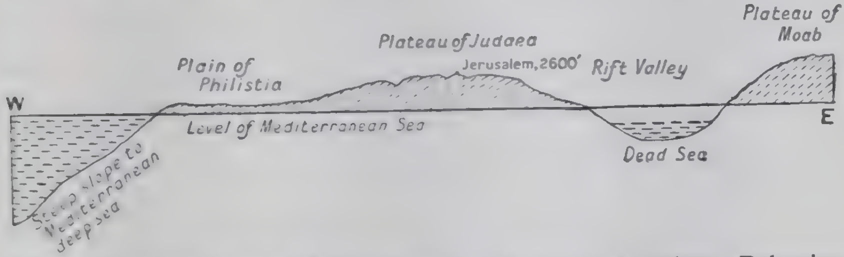


FIG. 4.—Section from Mediterranean Sea across Southern Palestine and the Rift Valley to the Plateau of Moab east of the Dead Sea.

Palestine has a Mediterranean climate, with winter rains and long, dry summers, and the almost rainless desert is its neighbour on the east. It will be readily understood why its chief exports are oranges, lemons, almonds, wine, and wheat. The people are of mixed Turkish and east Mediterranean races. The majority are Mohammedans in religion, and there are smaller numbers of Jews and Christians. About 40,000 Jews have settled in the country during the last seven years, most of whom have come from east central Europe.

Iraq (Mesopotamia).—On the eastern side of the great desert plateau of Arabia is a wide depression wherein are two great rivers and the deposits they have laid down.

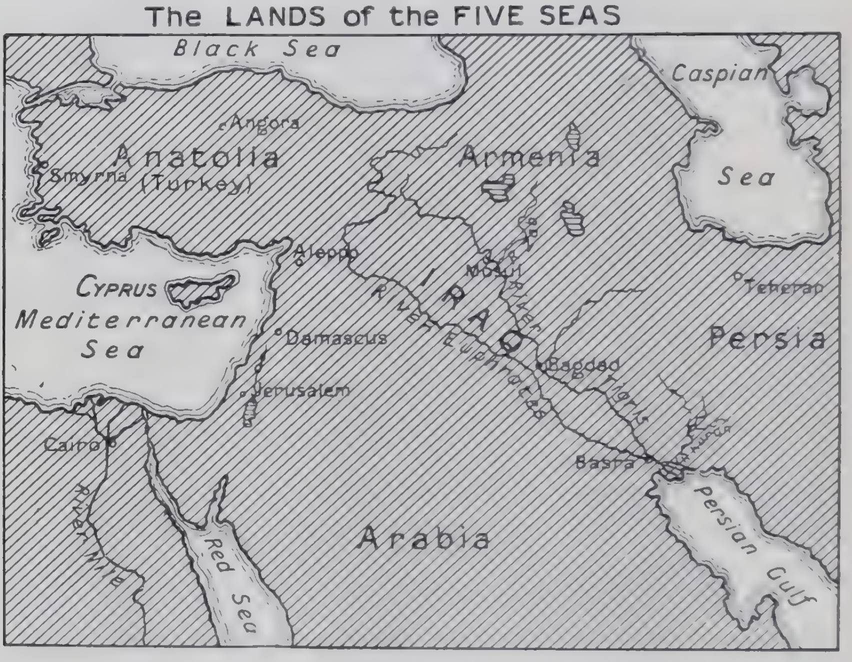


FIG. 5.

The Euphrates and the Tigris flow from the snow-clad mountains of Armenia, and for ages have been bringing their loads of sand and mud into the plain. They come down in great floods in March and April. Very little rain falls in this region, and if it were not for the waters of these rivers it would be a part of the desert. The summers are very hot indeed.

Some of the great peoples in the early history of civilised man lived in this region, and the ruins of famous cities of the past are found here. Nineveh in the north, and Babylon in the middle, were two of these ancient cities. Mosul, Bagdad, and Basra are the modern towns; there was a city, Bagdad, four thousand years ago; the modern city contains, perhaps, 200,000 people. Basra is the chief port.

The chief language now spoken is Arabic, but Turkish and Kurdish are spoken in some districts. There is a king and an elected parliament; and a British High Commissioner gives advice to the king on many matters.

This land of Iraq can produce wonderful crops if the irrigation is well managed, but without this it becomes poor steppe or desert. Rice and maize, dates, sugar-cane, and cotton are being grown. Wheat does well as a winter crop, and may be harvested in February or early March. Wheat, rice, and dates are the chief exports, in addition to petroleum, the production of which has considerably developed in recent years.

The **Kuria Muria** Islands, near the Arabian coast, some 750 miles from Aden, are barren islands, and were first occupied by the British as a cable station. They yield some guano.

In the Persian Gulf the British have a wireless station on the **Bahrein** Islands, which are the centre for the pearl fisheries of the Gulf. **Aden** and **Perim** were mentioned in Chapter III in connection with the Mediterranean route to the East.

QUESTIONS AND EXERCISES

CHAPTER IV

1. Why does the rainfall increase in Palestine some distance away from the coast, and why does it become less again still farther inland?
2. Why are the Rivers Euphrates and Tigris in flood in March and April and low in August and September?
3. Why is the Dead Sea so called, and to what does it owe its peculiar characters?
4. (*a*) A cubic foot of fresh water weighs $62\frac{1}{2}$ lbs. The water of the Dead Sea has a density of about 1·16. Find the weight of a cubic foot of Dead Sea water.
   (*b*) The volume of the Dead Sea is estimated at about four billion cubic feet, and contains approximately $\frac{1}{80}$th part of its weight of potassium chloride. How many tons of potassium chloride does the Dead Sea contain approximately?
5. What advantage does Iraq derive as an exporting country from having its wheat harvest in February or March?

CHAPTER V

INDIA—CEYLON—BURMA

LOOK at the map of the British Dominions. In the middle of the south of Asia is the region we call **India.** This is a triangular mass of land, with the apex of the triangle pointing southwards into the Indian Ocean; close to the apex is the important island-dominion, **Ceylon.** Attached to the east and west of the great triangle, almost like wings, are **Burma** and **Baluchistan.** We shall take all these together in the present study.

The name India has come down to us from the early explorers. We still use it as a very convenient name, but we must remember that some parts of the great triangle we have mentioned are not British, and also that there dwell in it peoples who are very different from each other in race, appearance, language, and religion. It is not a "country" in the usual sense. It is an Empire in itself, and the King of Great Britain and Ireland is Emperor. The Indian Empire contains nine major Provinces, which are as follows: Madras, Bengal, Bombay,[1] the United Provinces of Agra and Oudh, Bihar and Orissa, the Central Provinces, the Punjab, Assam, Burma, and six smaller or less important ones.

We are thus including an immense region in our study. Let us get some idea of its size. From the west of

---

[1] The first three are often spoken of as Presidencies.

Baluchistan to the east of Burma is nearly 40° of longitude—a distance of about 2500 miles. Mandalay is in longitude 96° E.; and Kalat, in Baluchistan, is 66° E. When it is midday at Kalat it is already 2 p.m. at Mandalay. The south of Ceylon is in latitude 5° N.; the north of Kaskmir is 37° N.—that is, a distance of over 2200 miles away. Ceylon is near the Equator, and the sun is overhead at noon at Colombo in the middle of April and again in the middle of August. It is, of course, never overhead in Kashmir.

These illustrations give us some idea of the immensity of the region we call India. It has a vast population, too. In the whole of the region included in this chapter there are about 329 millions of people, and less than six millions of these are in non-British territories. The population of "British India" with Ceylon is more than six times as great as that of Great Britain and Ireland. The British Empire contains about 460 millions of people, of whom, therefore, more than two-thirds live in India.

Many great Britishers have been connected with the development of India in the past, and there is one of the finest services in the Empire open to its citizens, including, of course, those of India itself. This is the famous Indian Civil Service—a service which devotes itself to the government and development of India and to the well-being of its vast population. Natives of India are now taking a very great part in this work, and this is as it should be. Many of them go to schools and universities in the Mother Land, and take part in the life there. One distinguished Indian prince, whilst a student at Cambridge University, became one of the cleverest and most attractive English cricketers, and he played with the English team against Australia. In all parts of the Empire we rejoice to see natives of India taking their part in the great affairs of the Empire and in its manly games.

Now we must learn something of the build of India. For the present we will leave out of account the more distant parts of the "wings" which have been mentioned. There are three divisions, quite distinct from each other in structure: (*a*) the high mountains of the north; (*b*) the great plains of the Indus and Ganges; (*c*) the Deccan plateau and its coastal plains.

The High Mountains of the North.—Not far to the west of the Indus delta a mountain range comes down to the Arabian Sea. This is the Kirthar Range. Let us begin there. Similar broken ranges, the Sulaiman Mountains and the Hindu Kush, continue to the north for a distance of over 800 miles. At the northern end of these mountains we come to the Pamirs, at the north-western limit of India. Now turn eastward and we see on our maps a long line of stupendous mountains, the highest in the world, extending for over 1500 miles. These are the Karakoram and the famous Himalayas. These extend eastward to the region where the great River Brahmaputra comes through from the north. In this mighty range are hundreds of the grandest mountain peaks in the world. We can only mention a very few: Nanga Parbat, 26,629 feet; Nanda Devi, 25,661 feet; Dualagiri, 26,826 feet; Gaurisankar, or Mount Everest, 29,002 feet; and Kinchinjunga, 27,815 feet. Mount Everest (Gaurisankar in the native language) is the highest mountain peak in the world. In recent years two brave attempts have been made to reach the summit, but so far without success.

This mighty northern wall of mountains would stretch from London to Constantinople in Europe, from Cape Town to beyond the Victoria Falls in Africa, from Adelaide to Darwin in Australia, and almost from Halifax to Winnipeg in Canada.

East of the great gorge of the Brahmaputra the mountains bend round to the south. Here the Patkai Mountains and the Arakan Yoma complete this mighty northern wall. The arrangement of these mountain ranges is shown in the diagram map, fig. 6.

This great mountain wall has had a wonderful influence upon all the life of that region. Over the mountains to the north are the high, cold, barren plateaux of Central Asia, and the warm, fertile plains of India have attracted wanderers from the north all through history. The Himalayas are so high, however, that it has never been easy to cross them; invaders have mostly entered India through passes in the lower ranges to the east and west.

The Great Plains.—The high northern mountains are young as regarded by the geologist, but even since they were uplifted and folded a great sea rolled to the south of them. The wear and tear of the rocks of the great ranges provided the material, and the rivers have gradually filled up the sea and then extended their deltas of sand and mud farther and farther. The sand and gravel, mud and clay, of which these plains consist, have been brought down by glaciers and rivers. Many millions of tons of new material are still being brought down every year and spread over the plains or carried out into the Bay of Bengal or the Arabian Sea.

The three great river systems of these plains, reading from west to east, are the Indus, the Ganges, and the

Brahmaputra. The Indus and Brahmaputra come from the north of the great mountain wall, and have cut mighty gorges at the western and eastern ends of the Himalayas. The Ganges comes mainly from the southern wall of the great mountain chain. These rivers and their great tributaries come down in flood in the summer time; they are

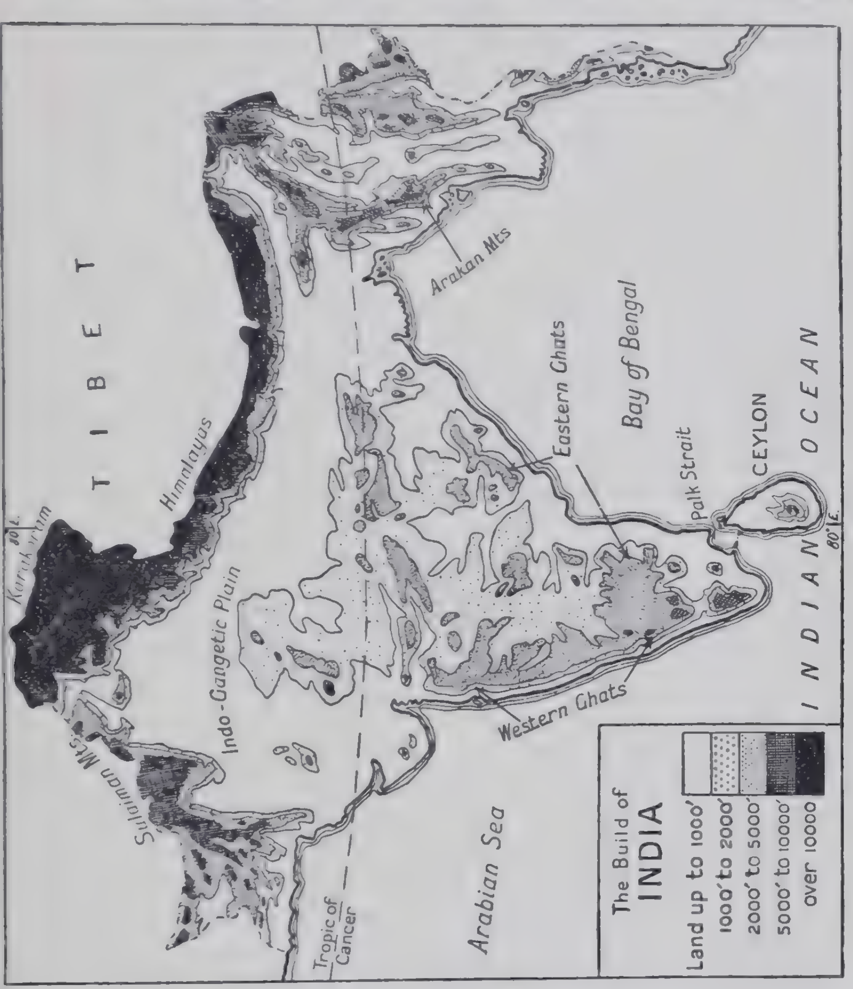


FIG. 6.

swollen by the summer rains and the melting snows. The Ganges, with its left bank tributaries—the Gogra, Gandak, and Arun—and the Brahmaputra are especially swollen, and thousands of square miles of land are covered with water for some months. When the rains and floods have ceased there is left a coating of fertile mud, which is worth a great deal to the farmer; but there is another result which is not so beneficial. When the floods subside, thousands of pools of stagnant water are left on the land, and in these the mosquitoes breed. The female mosquito is a dangerous pest, because she is the one that bites, and so passes on the germ of that terrible disease, malaria, to man. This is an example of the difficult engineering problems of India—how to get the advantages of the fertile mud, and at the same time keep down the mosquitoes and so prevent malaria. It is interesting to know that Sir Ronald Ross, who made the great discovery of the connection between the mosquito and malaria, was born in India, and served in the Indian Medical Service after studying in a London medical school.

In the west of the country a great dam is being built across the mighty river Indus at Sukkur. It will thus be possible to supply immense quantities of water for the almost rainless lands in that region. These great rivers mean a great deal in the life of India. It is no wonder that the Hindus have regarded them as sacred rivers—the Gifts of the Gods to the people.

The Deccan.—The third division of India is the Deccan plateau. Here is a tableland of old rocks, tilted up slightly towards the west, where the Western Ghats overlook a narrow, tropical plain. The tilt of the plateau causes the great rivers Mahanadi, Godavari, and Kistna to flow to the east. These rivers break through the low Eastern Ghats, and then spread out into deltas as they empty their waters into the Bay of Bengal. At the northern end of the Deccan two rivers flow through narrow valleys westward to the Arabian Sea: these are the Narbada and the Tapti. The Deccan has no real folded mountains, but the southern end of its western edge rises to 9000 feet.

There are seldom many good harbours on such plateau coasts, and the Deccan is no exception to the rule. This is one of India's great drawbacks. It is difficult to pass from the narrow western plain to the uplifted edge of the Deccan, and roads and railways are not easy to construct. This is another of the engineer's problems in India.

Lying off the south-eastern end of the Deccan is **Ceylon**, an island which has almost exactly the same area as Tasmania, three-quarters the area of Ireland, or three-fifths the area of Newfoundland. Ceylon is separated from India by the Gulf of Manar and Palk Strait. A line of low islands and a coral reef nearly make a connection with the mainland: this is called Adam's Bridge. This pear-shaped island of Ceylon has uplands rising to above 8000 feet in the middle, surrounded by lowlands of great fertility.

Ceylon is quite independent of the Indian Empire in matters of government. Its population is four and a half millions, of which about two-thirds belong to the Cingalese or Sinhalese, the native people of Ceylon. In addition, there are over a million Tamils, that is the same people who inhabit the extreme south of India. The population also includes many Malays, and about 8000 Europeans.

Baluchistan.—To the west of the Kirthar and Sulaiman Mountains is the wild, almost rainless region called Baluchistan. Here rivers come down from snow-clad mountains and lose themselves in marshes and salt lakes in the desert. It is a thinly peopled land.

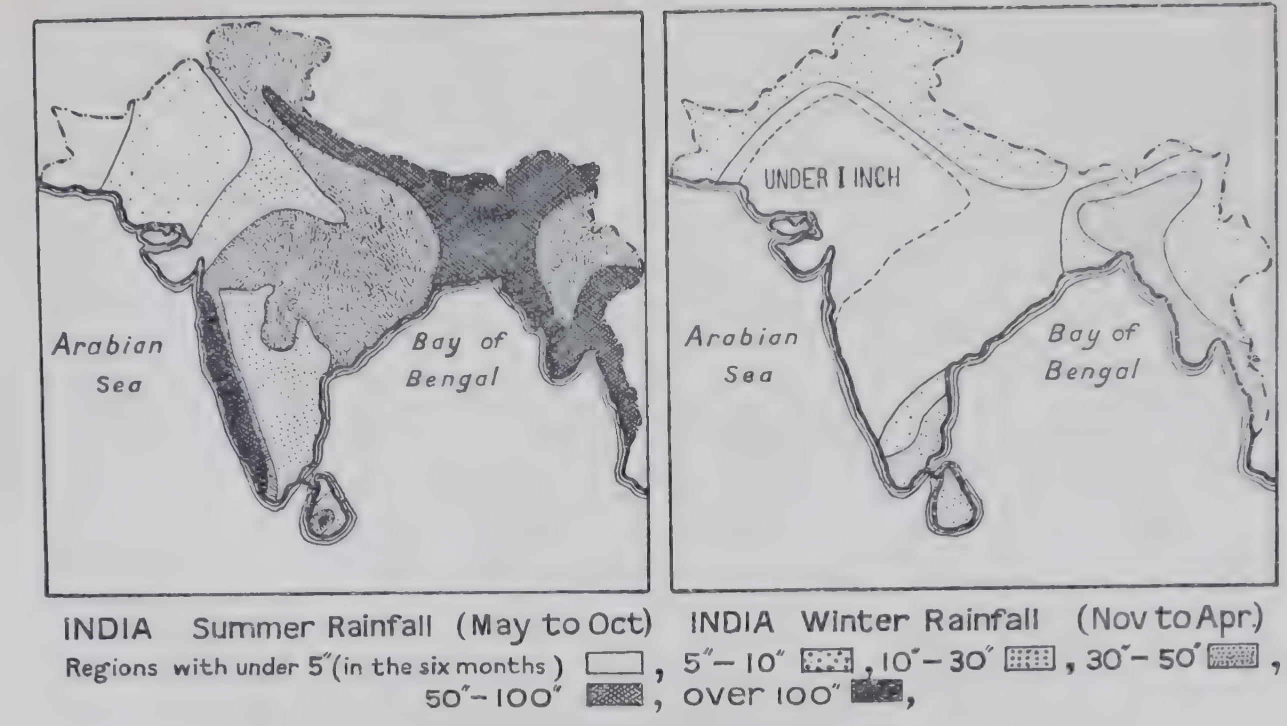
On the opposite side of India is **Burma**, a land of high mountains and great rivers. The Patkai Mountains and the Arakan Yoma have already been mentioned. East of these ranges are the broad valleys of two great rivers, the Irrawadi and the Salwen, both of which come from the mighty mountains to the north, and make immense deltas when they enter the tropical sea. Burma is a land of rich savana lands and dense tropical forests.

CHAPTER VI

INDIA (*continued*)

The Climate of India.—This is of unusual importance because it has so much to do with the life and work of the people. To understand the climate we must very carefully bear in mind two main things: first, that no part of India is more than 37° from the Equator, and that a good deal of it lies between the Equator and the Tropic of Cancer; and second, that there is a great ocean to the south and a vast continent to the north. The result of these factors is that India has a climate whose features are most clearly marked; the "seasons" are definite and come with striking regularity.

We may well begin by considering the state of things in January. Over most of India light winds blow from


Arabian Sea
Bay of Bengal
INDIA Summer Rainfall (May to Oct)
UNDER I INCH
Arabian Sea
Bay of Bengal
INDIA Winter Rainfall (Nov to Apr.)
Regions with under 5″ (in the six months) ▭, 5″–10″ ▨, 10″–30″ ▨, 30″–50″ ▨, 50″–100″ ▩, over 100″ ■,

FIGS. 7A and 7B.

north or north-west or north-east; the weather is cool, especially in the north, very little rain falls, and the sky is cloudless almost everywhere. This is the time of the north-east monsoon. There are exceptions to these general conditions in two parts of the region. Some rain and snow fall in the north-west, and there is rain in the south-east of India and in Ceylon.

On the 21st of March the sun is overhead at noon at the Equator, and India is rapidly becoming warmer. The real hot weather comes now, and as the sun rises higher and higher over India the heat increases. Little rain still falls, except in the south, and the weather becomes very trying. This season, from the middle of March to the middle of June, is the one which European residents find most difficult to bear. There are thunderstorms here and there, especially in Assam and Burma, but in most parts vegetation is dried up and scarcely a green thing is to be seen.

Then in June comes the great change. The heat has become almost unbearable in the plains, and then suddenly the monsoon "bursts," as they say in India. Winds begin to blow strongly from the west and south-west; that is to say, from over the hot Indian Ocean. The sky becomes cloudy, and the air is full of moisture. Rain comes in torrents on most days, with now and then fine intervals, sometimes lasting for a day or two. This is the south-west monsoon—the summer or wet monsoon, as it is often called. From 85 to 90 per cent. of the rain of India comes during this season, which lasts over much of India until the middle of October. The sun is now overhead to the south of the Equator, and the monsoon begins to retreat, or move southward. The cool season gradually comes on, and by the middle of December the north-east monsoon controls the weather again (see figs. 7A and 7B).

We cannot leave the subject of the climate without special reference to two regions. In the north-east of India the air of the south-west monsoon has to rise sharply over the Khasi Hills and up the southern slopes of the Himalayas. Rapid cooling takes place and the rainfall is enormous. Records are taken at Cherrapunji, where an average rainfall of about 445″ comes during the six months from the middle of April to the middle of October. The rainfall of the remaining six months is not more than about 12″. This region has one of the greatest rainfalls in the world, possibly the greatest of all.

There is a region between the Kirthar Mountains and the north-west corner of the Deccan where little rain falls at any time. One part of this region is called the Thar Desert. Here dried-up river-courses and relics of former cities may be seen; the climate there was not always so dry as it now is. The summer monsoon brings little rain, though the winds come from the west; but they blow rather from due west and north-west than from south-west, and they have come from over the dry lands of Baluchistan and Iraq as dry, hot winds. Sometimes in this region there is no rain for a whole year, but, on the other hand, a sudden thunder-storm may give several inches of rain in a few hours. The *average* rainfall of Hyderabad, 100 miles from the mouth of the Indus, is 8″ per annum; 10″ fell in one day in August 1865. The problems here are, first, how to conserve these sudden rains; and second, how to bring water from the Indus to irrigate more and more of this hot, dry region (see figs. 7A and 7B).

The Agriculture of India.—Under this general term we include all work which obtains plant and animal products from the land, directly or indirectly—forestry, grazing, ploughing, gardening, in all their grades and variations. Agriculture is of great importance to India itself, and the products thereof are of first-rate value to the Empire. India is a region of vast possibilities: it has its own great population to feed, and the demands of that population are becoming greater, and rightly so. It would be a disgrace to the British Empire if the very low scale of living of the peasantry in the past should be allowed to continue. It has already been improved very greatly, and the terrible famines of the past could not happen now; but there is, of course, room for further progress. India can produce abundant food of many kinds for its own people, and vast quantities of food and raw materials can be sent to other parts of the Empire, always, of course, in exchange for those things which India needs. The Indian peasant is a skilled farmer, and with the aid of modern engineering and other sciences and arts India will become an exceedingly productive land. Let us now mention some of its more important productions.

Wheat is grown as a winter crop, especially in those regions where there is winter rain. It is harvested in January or February. Karachi is the chief place of export. Barley is grown in the same regions and at the same time. Maize is also widely grown, and some of this is exported. Other crops which are grown most widely are millets, pulses, and oil seeds. At least seven well-known kinds of millet are grown for food in India. The pulses include peas, beans, lentils, and gram: an official book on food plants names twenty-four of these pulses as being grown in India.

The most important food crop in India is rice, which is grown in the well-watered lowlands everywhere. In the year 1924–25 there were 80,000,000 acres given over to the cultivation of rice—that is, almost exactly the combined area of England and Scotland; from this great area 31,000,000 tons of rice were produced. Rice was third in value in the exports of India in that year.

Another important food plant which India can grow very well is the sugar-cane; but as yet more sugar is consumed than is grown, and India draws largely on Mauritius for its supplies. Tea is another Indian product of great value. Indian tea is well prepared and of good quality; it came fourth in value among the exports in 1924–25.

Raw cotton stands first in value in the exports of India. It is grown in many districts, but chiefly on the rich "cotton soil" of the north-west of the Deccan and in the basin of the Indus. India ought to be well adapted for the growth and export of some of the best cotton: the climate and the soil are right, and the farmers of India have sufficient skill. Up to the present, however, a good deal of it has been of rather poor quality, though a great improvement is now taking place. There are new irrigation schemes on foot in the Punjab, and here it is proposed to grow cotton equal to the finest obtained from the United States or from Egypt.

Another plant product of great importance is jute, which is chiefly grown in the east of the great plain. A good deal of jute is manufactured into bags, sacks, and other fabrics in India, and a large quantity of raw jute is exported, chiefly to Dundee, in Scotland.

The eight leading exports of India in order of value in 1924–25 were: raw cotton, manufactured jute, rice, tea, oil seeds, raw jute, wheat and wheat flour, manufactured cotton. From this list it is quite clear that agriculture comes first in India. There are many other important plant products, such as indigo, coco-nuts, rubber, and quinine, but they fall far behind those mentioned before.

It may be stated finally that Ceylon is especially famous for tea, rice, coco-nuts, rubber, and citronella oil, and that Burma is noted not only for rice but for immense quantities of teak—that very durable wood which is now so well known all over the world.

India has, too, its mineral products of importance. There is coal in great quantity, and iron-ore and manganese-ore are very important. Gold is also found, and came next in value to coal, petroleum, and manganese-ore in the mineral production in 1923–24. The amount of coal produced had increased in 1924–25 to 21,000,000 tons compared with 19,600,000 in 1923–24. Many parts of the great region have special mineral productions: India has its monazite sand, which is so useful in the making of incandescent gas-mantles; Burma has two very different and valuable mineral products in rubies and petroleum; whilst Ceylon is now the Empire's foremost producer of graphite or blacklead.

A great region with such an enormous population is sure to have a large number of important cities. Here is a list of those with over 200,000 people each. Every reader should compare them with towns in his or her own land.

Bombay	1,175,914	Ahmedabad	270,470
Calcutta	1,132,246	Colombo	244,163
Madras	526,911	Lucknow	240,566
Hyderabad (Deccan)	404,187	Bangalore	237,496
Rangoon	341,962	Cawnpore	216,883
Delhi	304,420	Karachi	216,436
Lahore	281,781	Poona	214,796

In addition to these there are twenty towns with populations of from 100,000 to 200,000, and forty-three with populations of from 50,000 to 100,000.

Delhi is the capital and the seat of government of the Indian Empire. Colombo is the capital of Ceylon.

QUESTIONS AND EXERCISES

CHAPTERS V AND VI

1. Which do you think are likely to be (*a*) the most thickly populated parts, (*b*) the most sparsely populated parts of India? Give your reasons for thinking so.
2. India spins and weaves cotton into the cheaper kinds of cotton goods and at the same time imports a great deal of higher class cotton goods from Lancashire. Suppose every inhabitant of India could spend on the average 6d. a month on the purchase of cotton goods made in Lancashire, what would that mean to the cotton trade of that busy region?
3. A steamer goes from Liverpool to Calcutta. What ports of call might she visit on the way?
4. What are the distances between Bombay and Calcutta, Bombay and Madras, Madras and Calcutta, and between Karachi and Rangoon, by sea and by air?
5. The total annual rainfalls of Calcutta and Trincomalee (on the east coast of Ceylon) are nearly the same. Does the rain fall at the same season in each case? Explain as fully as you can.

6. Find Rangoon and Mandalay on your atlas map. The total rainfall of Rangoon is three times as great as that of Mandalay. Explain as fully as you can.
7. The average rainfall of Cherrapunji is about 457″ per year, that of Jacobabad[1] about 4″ per year. Explain this great difference as fully as you can.
8. A steamer calls at Rangoon, Calcutta, Madras, and Colombo, collecting produce for London. Make a list of the possible exports the steamer may collect.
9. Write a story about jute and wool, bringing in the following possible happenings: jute was grown in Bengal and woven and made into sacks at Dundee; the sacks were sent to Australia to be filled with wool; the wool was taken to the wool sales at London and then to Bradford (Yorkshire) to be woven into woollen cloth; the cloth was made into boys' suits at Leeds, and these were sent to Canada for Canadian boys.

---

[1] In the lower Indus plain.

CHAPTER VII

BRITISH MALAYA: THE EMPIRE IN CHINA

On the eastern side of the Bay of Bengal is the long Malay Peninsula, reaching almost to the Equator. Here are two sub-groups of British Dominions which work together for common purposes under the name British Malaya. The two sub-groups are the **Straits Settlements** and the **Federated Malay States**: we shall take them together in this chapter. There are also five non-federated Malay states, the rulers of which are Sultans or Rajahs. The rulers are assisted in each case by a British adviser appointed by the British Government. The weights and measures and the currency are the same as in the Straits Settlements and Federated Malay States.

The peoples of British Malaya include native Malays, immigrants from China and India, and a few thousand Europeans. There are almost as many Chinese as native Malays in many parts of the region.

The **climate** is similar to that of India, but the seasons are not so strongly marked, because the peninsula is a little nearer the Equator. The records taken at Singapore and Penang show us that there is rain at all seasons, with heavy falls in May, September, October, November, and December. The rainfall at Singapore is 93″ per annum and at Penang 109″. The temperature varies little,

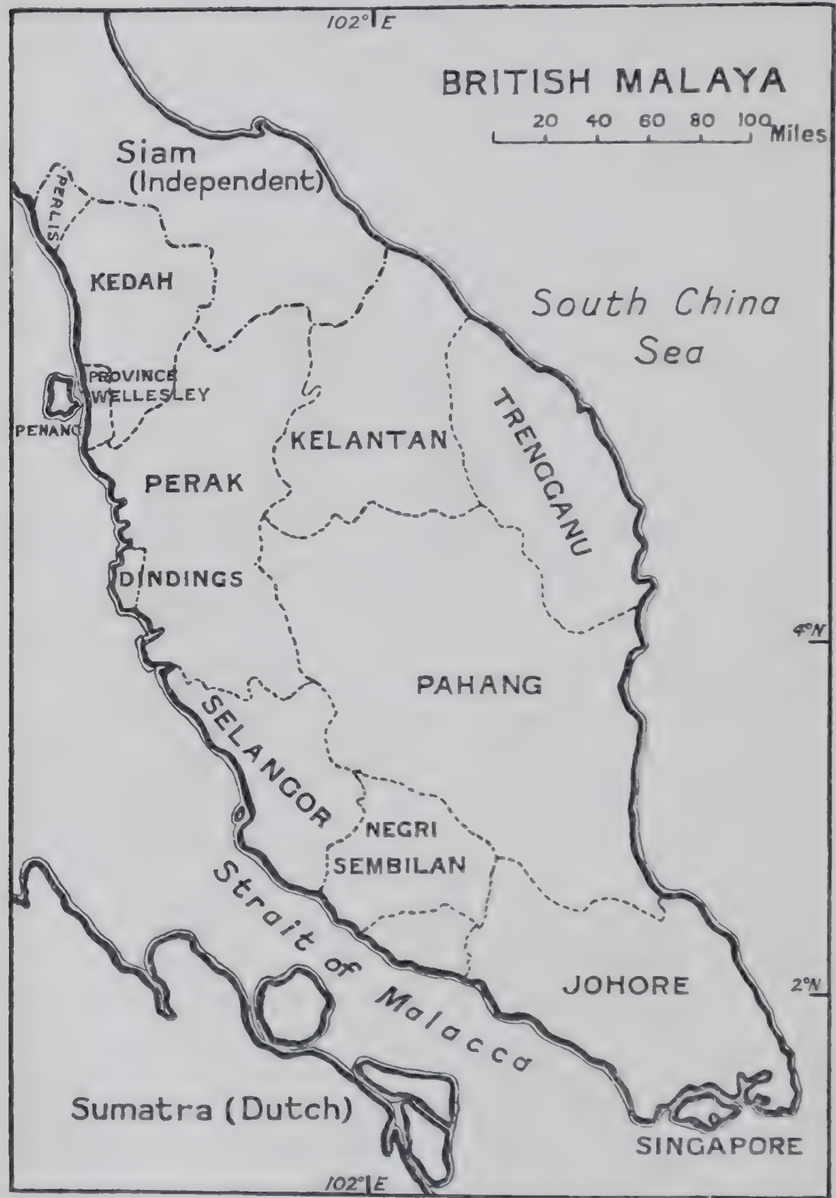

BRITISH MALAYA
20 40 60 80 100 Miles
102° E
Siam (Independent)
PERLIS
KEDAH
PROVINCE WELLESLEY
PENANG
KELANTAN
TRENGGANU
South China Sea
PERAK
DINDINGS
PAHANG
4°N
SELANGOR
NEGRI SEMBILAN
Strait of Malacca
JOHORE
2°N
Sumatra (Dutch)
SINGAPORE
102° E

Fig. 8.

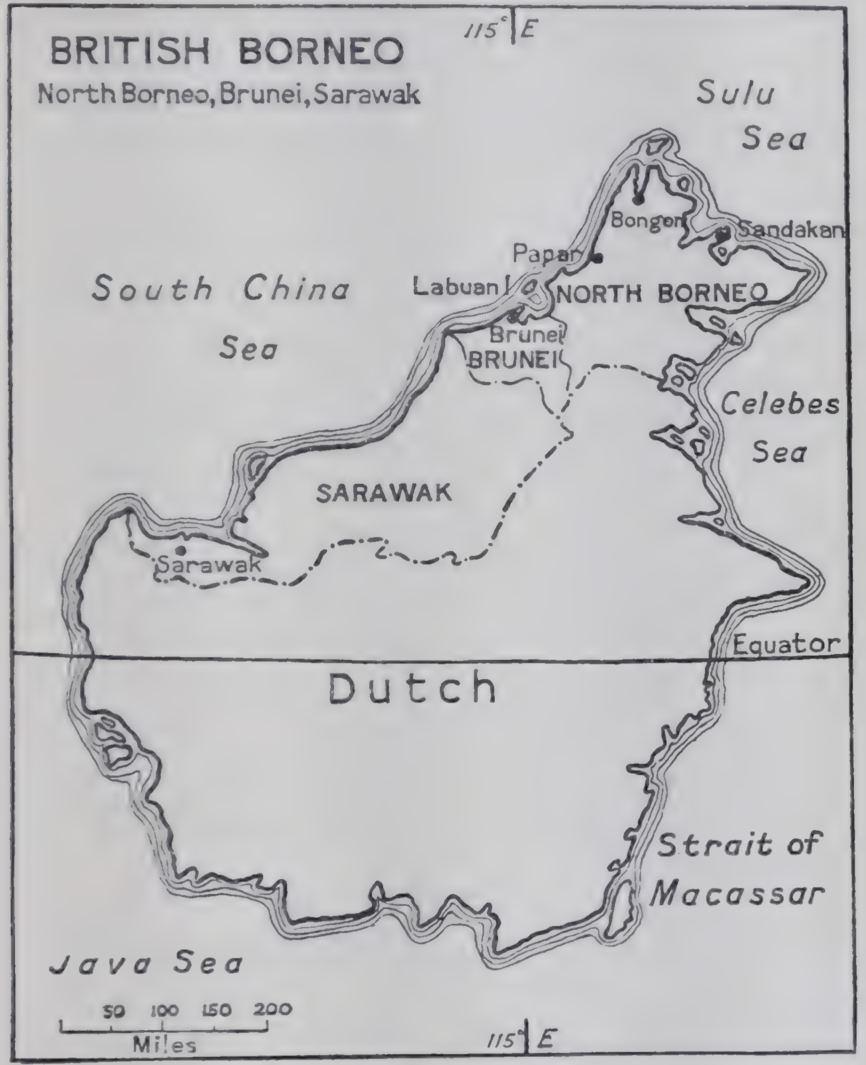

BRITISH BORNEO
North Borneo, Brunei, Sarawak
115° E
Sulu Sea
Bongon
Sandakan
Papar
Labuan I.
NORTH BORNEO
South China Sea
Brunei
BRUNEI
Celebes Sea
SARAWAK
Sarawak
Equator
Dutch
Strait of Macassar
Java Sea
50 100 150 200
Miles
115° E

FIG. 9.

December and January being the coldest months, with an average of 79°, and April and May the hottest months, with an average of 82°.

A region with such a constant high temperature and so heavy a rainfall naturally produces luxuriant vegetation, and the Malay Peninsula is clad in dense forests from which many useful products are obtained. Teak, bamboo-canes, rattans, resins, gutta-percha, and gambier are obtained from the forests; from the cleared land the chief productions are rice, tapioca, sugar, coffee, pepper, nutmegs, coco-nuts, and rubber.

The story of rubber production in British Malaya shows what can be done by different parts of the Empire helping each other. Formerly we were dependent on the basins of the Amazon and the Congo for the finest rubber. Seeds of the Para rubber tree were taken to the Royal Botanic Gardens, Kew, London, and seedlings were raised there, the young plants then being taken to Ceylon and Singapore. This was the beginning of an industry which has been of great value to the British dominions in Asia and to the manufactures of the Empire.

The Malay Peninsula has much mineral wealth, but at present the ores of one metal overshadow all the others: the tin mines there are the most important in the world. The leading exports of the Straits Settlements in 1924, in order of value, were: Para rubber, tin, copra, pepper, preserved pineapples, tapioca, sago, and rattan-canes. The exports from the Federated Malay States were similar.

Singapore is an exceedingly important British trading centre. It is an island at the extreme end of the Malay Peninsula, from which it is separated by a strait less than a mile in width. There are well-fitted docks for the repair of ships. The port is free to the ships of all nations; liners call regularly, and great numbers of smaller trading ships call from time to time.

The **Borneo Group** of British Dominions.—The northern third of the great island, Borneo, is British, or under British protection. There are three British states in this group—British North Borneo, Brunei, and Sarawak. The total area is 77,000 square miles, which is nearly equal to that of England and Scotland together, or the Orange Free State and Natal together, or the State of Victoria, Australia.

The Equator crosses the middle of the island; the rainfall is therefore heavy and, like that of Singapore, it comes at all seasons, with a distinct maximum in the months October to January; and the temperature is always high. Sandakan, in North Borneo, has 127″ of rain per annum, and the temperatures are—January, 79°; July, 82°.

The plant products are similar to those of the Malay Peninsula. The mineral wealth includes coal, petroleum, and a little gold. The exports of Sarawak for 1924, in order of value, were as follows: petroleum, plantation rubber, sago-flour, gutta-jelutong, pepper, and cutch. These exports were mostly shipped through Singapore.

British Dominions in China

Hong Kong and Kowloon.—Hong Kong is an island near the coast of China, at the mouth of the Canton River. It is 32 square miles in area. The city of Victoria is built on a fine harbour facing the mainland. The port is a free one, and is the chief emporium for imports and exports in Eastern Asia. A peninsula of the mainland, called **Kowloon,** is also British.

Wei-Hai-Wei is at the end of the Shantung Peninsula, in the middle of the Chinese coast. It was leased to the British for the protection of shipping in Eastern seas. The total area is about 285 square miles.

QUESTIONS AND EXERCISES

CHAPTER VII

1. What metal is exported from Malaya to Britain in large quantities? In what parts of Britain is it re-smelted and worked up? What alloys are made by smelting together copper and tin, and zinc and tin, respectively?
2. What do you know about copra, gambier, jelutong?
3. What do you know about sago and tapioca and the way they are obtained?
4. What are the chief food exports from Singapore?
5. How far is it from Singapore to Sandakan in North Borneo, from Singapore to Hong Kong, and from Sandakan to Port Darwin in Australia?
6. A British steamer trades between Liverpool and Hong Kong. What ports is it likely to visit? What goods will it take out from Liverpool and what goods will it bring back to that port?
7. What other town in the British Empire has the same time of day as Hong Kong? Compare their time with that of Greenwich and with that of Halifax, Nova Scotia.
8. Find the latitude and longitude of each of the following places: Singapore, Sandakan, Hong Kong, Port Darwin.

CHAPTER VIII

AUSTRALIA

FROM British Malaya it is a natural step *across* the Equator to Australasia, a name which means Southern Asia. We will deal first of all with Australia itself, together with Tasmania and the British part of New Guinea (the Territory of Papua).

The great "All-British Land," Australia, is a compact island-continent about 2300 miles from east to west, and nearly 2000 miles from north to south. Its area is nearly 3,000,000 square miles, or over twenty-four times the size of the British Isles.

The island of Tasmania lies about 180 miles away to the south of Victoria. Its area is a little greater than that of Ceylon, or about four-fifths of that of Ireland. It is one of the states of the Commonwealth of Australia.

The Territory of Papua includes the south-eastern part of the island of New Guinea and a number of smaller islands near it. The area of this is about 90,000 square miles, or almost exactly that of Great Britain.

The Build of Australia.—There are three distinct parts of Australia which the student can easily recognise by looking at the map showing the build of the island. (1) In the western half of the continent is a great tableland which rises to nearly 4000 feet in some places; (2) a lowland belt which runs from the northern to the southern seas, and which is seldom more than 1000 feet above sea-level; (3) an eastern belt of uplands, steep towards the east, and sloping gently towards the west. These East Australian Highlands are often called the Great Dividing Range. They may be traced from Cape York to the south of Tasmania. The highest points are Mount Townsend and Mount Kosciusko, both about 7300 feet, in New South Wales. In Tasmania the highest peaks rise to over 5000 feet.

The **Rivers of Australia** depend both upon the climate and the build of the continent. As we shall see later, the rainfall of the interior of Australia is low, and over great areas there are in consequence no big rivers. The greatest river system is that of the Murray, with its big feeders—the Murrumbidgee, Lachlan, and Darling. These flow down the gentle western slopes of the eastern highlands and across the southern part of the interior plain to the Southern Ocean. They carry supplies of water into the sunny lands of the southern plains, where great storage reservoirs have already been made and others are planned or in progress. The irrigation fruit farms which are watered by them are among the most famous in the world.

Some rivers which flow westward from the eastern highlands only reach the salty lakes, or die out in the dry plains. There is in the great heart of Australia a basin of inland drainage, or an area where the waters do not reach the sea.

From the steep side of the eastern highlands, where there is a plentiful rainfall, many short rivers flow in rapid courses to the Pacific Ocean. They carry down much water, together with vast amounts of rock waste

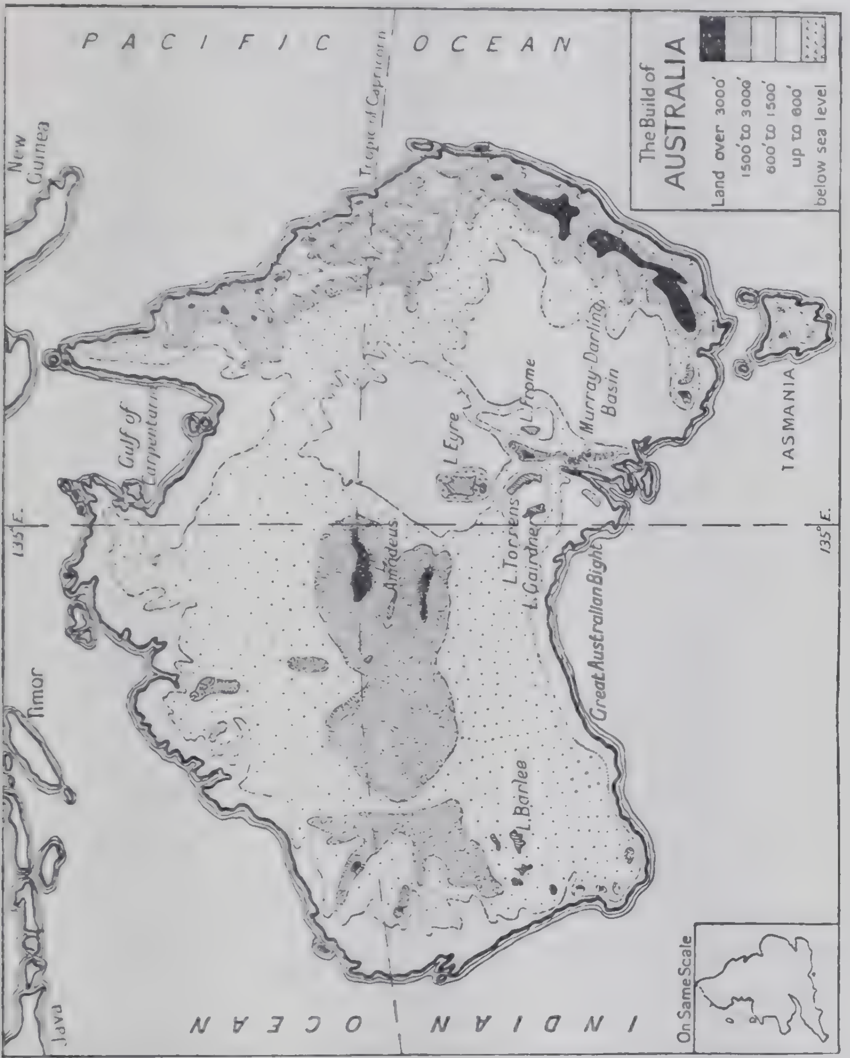


FIG. 10.

from the hills, and are apt to form sand bars at their mouths. These rivers are likely to be of great use for water-power in the future.

Some rivers flow from the plains into the Gulf of

Carpentaria, and these are fed by the summer rains of that region, as are also the rivers of the north-west. The rivers of the south-west are of no great length, as east of them is the dry plateau, where the rainfall is low. Here the rains come in winter, and the rivers are high in that season. Along the south coast, for a distance of over 500 miles, the map of the Great Australian Bight does not show a single permanent river discharging into the Southern Sea.

Tasmania is plentifully supplied with rain, which comes at all seasons; and the rivers, therefore, all reach the sea, and their flow may be depended upon for most of the year. They are already much used for water-power, and further developments are likely in the near future.

The student should master the names of the important rivers from a good atlas.

The Climate of Australia.—The northern part of the Territory of Papua lies only 5° south of the Equator: the southern point of Tasmania is rather more than 43½° from the Equator; hence Australia and its territories stretch through 38½° of latitude, and we must expect great differences in the climate. British New Guinea has an equatorial climate, with some rain at all seasons, heaviest in May and June, when the south-east monsoon blows. It is hot all the year round, and the range of average monthly temperature is only about 3°, from 79° to 82°.

The important factors in the climate of the Australian continent are: (*a*) the Tropic of Capricorn divides it almost in halves; (*b*) the land is a very compact mass, little penetrated by the sea; (*c*) the highlands are near the east coast; (*d*) there are no very high mountain ranges. The north lies mainly in the tropical monsoon region, the bulk of the continent in the zone of south-east trade winds, and, in the south-west, westerly winds blow in winter.

We can recognise four quite different types of climate, or climatic regions:

(1) The north and north-east have a fairly heavy rainfall, most of which comes in summer. At Cape York the average annual rainfall is 82″, of which about 77″ falls in the six summer months, November to April. The difference between the average temperatures of the coldest month, August, and the hottest month, December, is only 6°.

(2) In the south-east there is rain all the year round, but, of course, much more near the coast than in the interior. Sydney may be taken as the type. Its average annual rainfall for sixty-five years is 47·7″, and there is no month with more than 5·4″, and none with less than 2·8″. January is the hottest month, and is 19° warmer than July, the coldest. If we go over the mountains and across the plain to Dubbo we find two results that we might have expected. The total rainfall is much less, being only 22″, or a little less than that of London: it is very evenly distributed throughout the year. The range of temperature is, of course, greater, and the hottest month, January, is 31° warmer than the coldest month, July.

(3) The third region is that which has most of its rain in the winter, when the west winds blow from the Indian Ocean. This is in the south and south-west of the continent. We may take Perth and Adelaide, two of the Australian capitals, as our types of this region. At Perth

the average rainfall is 34″, of which 29″ falls in the six months, April to September. Adelaide has an average rainfall of 21″, with about 15″ in these same winter months.

(4) This fourth region is in the middle of Australia, extending to part of the south coast. Here the average annual rainfall is nearly always less than 15″, and in some cases as low as 5″. The summers are very hot, and the range of temperature is greater than in the other regions.

Tasmania may be regarded as a separate fifth region. This island lies farther south, so that it comes well within the zone of westerly winds: this fact explains why there is more rain in the west than in the east, as a rule, and why distinct "rain shadows"[1] are noticeable. The climate is somewhat similar to that of Victoria, but cooler and more equable. Hobart may be taken as the type, although it lies somewhat in one of the rain shadows. The annual rainfall is 24″, with no month having less than 1·4″ and no month more than 2·5″. The average temperatures for the hottest and coldest months, February and July, are 62° and 46°.

The climate of Australia, except in certain parts of the tropical north, is extremely healthy. The six capital cities show the following high records of sunshine out of about 4380 hours per year possible: Perth, 2802 hours; Brisbane, 2601 hours; Adelaide, 2540 hours; Melbourne, 2286 hours; Sydney, 2101 hours; Hobart, 1903 hours.[2]

Artesian Wells.—A good deal of the middle of

---

[1] See the glossary, page 175.

[2] The student should work the first thirteen questions and exercises on Australia at this stage (see end of Chapter IX).

Australia lacks sufficient rain for wheat-growing, fruit-farming, or even for sheep- and cattle-rearing, but over

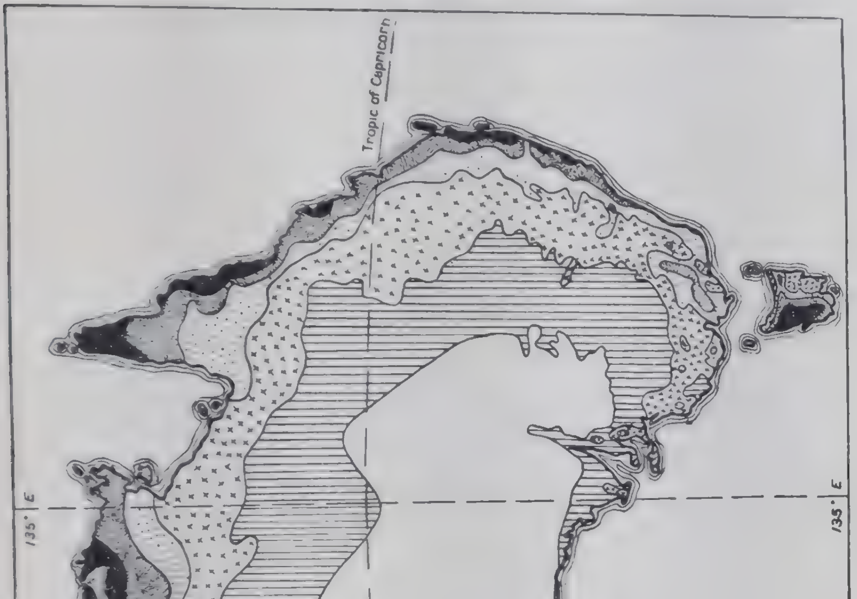


FIG. 11.

vast areas water may be obtained from deep borings. For instance, the rolling downs of Queensland and New South

Wales are underlain by clays, below which are sands and gravels, which contain enormous quantities of water at high pressure. When a borehole is put down through the cover of clay the water usually rises by its own pressure, but in some cases the water has to be pumped. These deep wells, called artesian wells, have been a wonderful help to the farmers of Australia. There are now over 4000 of them, many of which are over 4000 feet deep; one near Blackall, in Queensland, is over 7000 feet deep—one of the deepest borings in the world.

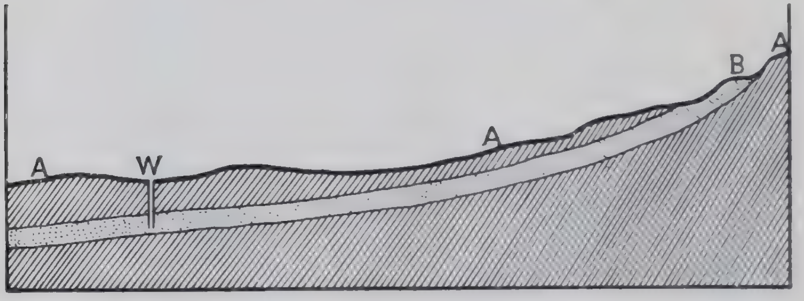


FIG. 12.—Diagram to illustrate an Artesian Well.

A, Impervious rocks ; B, Porous rock ; W, Artesian Well from which water falling at B will issue.

The Great Barrier Reef.—A great coral reef, the Great Barrier Reef, extends for 1200 miles roughly parallel to the north-east coast of Australia. This is the greatest coral reef in the world, and the story of the marine life found there—the corals, sea anemones, shell fishes, creatures of the crab and lobster type, and the true fishes—would require a book to itself. Between the reef and the coast is a shallow channel, which varies from 20 to 70 miles in width. Outside the long line of reefs is the

Coral Sea, in which are many scattered coral islands. Here the ocean rapidly gets deeper, and several soundings of over 12,000 feet have been taken.

CHAPTER IX

AUSTRALIA (*continued*)

AUSTRALIA and Tasmania are very rich in minerals, and there are vast areas where the rocks have not yet been fully examined. Over 12,000,000 tons of coal were produced in 1922, about five-sixths of which came from New South Wales. Very little petroleum has yet been found in Australia, and the Commonwealth Government offers a reward of £50,000 for the discovery of that precious fuel in quantities that will pay for working.

Metals occur in great abundance and variety, and Australia owes much of its early prosperity to the rush for gold in the middle of the last century. Taking them in the order of their value as produced, the chief metals are gold, lead with silver, zinc, copper, tin, and iron. The famous Broken Hill Mine in the extreme west of New South Wales yields silver, lead, and zinc in very great quantities. There was a beautiful model of it in the Empire Exhibition at Wembley in 1924 and 1925. Salt, oil from shale, and asbestos are other minerals of importance which the Australians obtain from their rocks.

When the gold rush took place last century, many men who went out hoping to win great wealth in the mines settled there as farmers and fruit-growers, and it was seen that Australia could yield more wealth from its soil than from the rocks underneath. Wheat and maize, oats and barley are grown in tremendous quantities, and many shiploads of wheat are sent to the Mother Country every year. In 1919–20 the quantity of wheat thus exported to the British Isles was nearly 50 million bushels. This was a record year, and Australia came to the help of the Mother Country in the latter's sore need.

Australia can grow many kinds of fruit well. Apples and pears, oranges and lemons, peaches and apricots, grapes, pineapples, and bananas make up a goodly list. Raisins are, of course, dried grapes, and these with other dried and preserved fruits are among Australia's well-known products. The famous irrigation fruit farms of Mildura and Irymple, on the banks of the Murray, are known all over the world.

Australia has some specially valuable timber trees: in the forests near the coast some of the tallest trees in the world are found. The timber obtained from the Eucalyptus family of trees is hard and durable, and some kinds can be used for structures under water. The gigantic jarrah of south-western Australia is especially prized for such work. Eucalyptus oil, now so widely used in medicine and as an antiseptic, is chiefly obtained from the leaves of the eucalyptus tree.

The Australian has been termed the "Shepherd King" of these days, and certainly Australia is now the richest of the continents in flocks and herds. It is over 100 years since Captain John MacArthur saw how well Australia was suited to sheep-farming, and he would not be satisfied until he managed to introduce merino sheep into the young colony. Australia owes much to that great pioneer, for now it produces far more wool than any like region in the world, and that, too, of the very best quality. Australia had 80,000,000 sheep in 1924–25, and these yielded over 685,000,000 lb. of wool, out of a world total of 2,800,000,000 lb. In 1924 the wool exported from the Commonwealth was valued at over £56,000,000. In addition to the wool there are sheep skins, tallow, and mutton, the latter being mainly sent to England in the frozen condition. The total of these three exports to the United Kingdom was valued at over £4,000,000 in 1924. From her vast flocks of sheep Australia thus produces much wealth for the people, and helps other parts of the British Empire.

Australia has at present over 14,000,000 cattle, and from these there are vast exports of preserved beef, butter, condensed milk, cheese, hides, and hoofs. The butter exported in 1924 was valued at nearly £6,000,000, and Australia came next after Denmark and New Zealand in the quantity of butter imports into the British Isles.

From all this we can see what a great farming continent is Australia, and how the Home Country depends upon it for supplies of many of its needed foods.

Australia has its great problems to face, and difficulties to overcome, of course. A new Commonwealth may well expect that. These problems include the development of its railways and the adjusting of their different gauges so that more trains can make longer through journeys. There are nearly 27,000 miles of railways, but less than 6000 miles are on the "standard gauge" of 4′ 8½″.[1] The famous Trans-Australian Railway connects Kalgoorlie, in West Australia, with Port Augusta, in South Australia, and is 1051 miles long.

---

[1] This state of things is being improved rapidly.

Another great problem for Australia is that of getting the right people in sufficient numbers to develop its vast resources. It is no place for slackers, but needs keen workers. Australia is almost the same size as the United States of America, but the whole population of the Commonwealth is only equal to that of Greater New York. At present there are not quite six millions of people in the whole vast island continent, and of these there are more than two and a half millions in the six capitals—Sydney, Melbourne, Brisbane, Adelaide, Perth, and Hobart. This is 45 per cent. of the whole population, which seems too large a share; the great open country is crying out for more people. The Australians have decided that theirs shall be a continent of white people.

The Australian continent has still about 60,000 aborigines, that is peoples of those original races who inhabited the continent before the coming of the white man. Their numbers are declining, though not so rapidly as formerly. They are negroid in appearance. The last of the Tasmanian natives, a woman, died in 1876. It is thought that the blacks of Tasmania numbered about 2000 when white man took possession.

There are six States in the Commonwealth of Australia,—each with its own parliament and capital: these are New South Wales, Victoria, Queensland, South Australia, Western Australia, and Tasmania; in addition there are the Northern Territory, the Territory of Papua (New Guinea), and an area set apart for the Federal Capital (Canberra) of the Commonwealth of Australia.

The population of the six capital cities is as follows (31st December 1923):—

Sydney (N.S.W.)	981,400	Brisbane (Queensland)	235,687
Melbourne (Vict.)	852,850	Perth (W.A.)	171,859
Adelaide (S.A.)	278,856	Hobart (Tasmania)	55,243

Note.—Sydney is thus the fifth city in population in the Empire, being surpassed only by London, Glasgow, Bombay, and Calcutta.

QUESTIONS AND EXERCISES

CHAPTERS VIII AND IX

1. Which are the six States of Australia? Find them on a map. Which is the largest and which the smallest of these States?
2. Compare New South Wales, the oldest State, with England, in area and population.
3. Name any other continents which have lowland belts extending right across.
4. Why are the Eastern Uplands called the Great Dividing Range?
5. The mountains in the south-east of Australia are called the Australian Alps. They are not built like the Alps of Europe. Why are they called Alps? (Compare the Alps of New Zealand.)
6. The Murray group of rivers reaches the sea, and the similar rivers farther north only reach the salt lakes of the middle of the continent. Why is this?
7. Why are the rivers which flow from the highlands to the Pacific Ocean more rapid than those which flow westward?
8. Which parts of South Africa would you expect to have the same climate as (*a*) South West Australia, (*b*) South East Australia, (*c*) Central Australia?
9. What is the distance from Sydney to Dubbo? What mountains and rivers would you cross in going from one to the other?
10. Why is there less rain at Adelaide than at Perth? The winters are a little colder at Adelaide than at Perth. Can you explain this?

11. Can you explain why Hobart has less sunshine than any other of the capital cities of Australia?
12. In which part of the year will Perth have the greatest percentage length of sunshine, compared with the length of daylight?
13. What is meant by a "rain shadow"? Where do rain shadows occur in the British Isles, Australasia, India, and Burma? (You will meet with excellent examples in New Zealand and Canada, later.)
14. Make a model of an artesian well by using sand and clay, or plasticene. Can you make it work?
15. When do you expect wheat will be harvested in Australia?
16. Which part of Australia do you think will be suitable for the growing of cotton? Give your reasons.
17. Bananas and apples were mentioned among the fruits of Australia. Explain why Queensland produces most of the former and Tasmania a very large proportion of the latter.
18. Make a list of Australian products which you are in the habit of using regularly.

CHAPTER X

NEW ZEALAND

TWELVE hundred miles away to the south-east of Australia lies New Zealand—a line of beautiful islands almost on the very opposite side of the world from the British Isles.

Two large islands, North Island and South Island, stretch for nearly a thousand miles through the Southern Pacific Ocean, with Cook Strait, named after the great navigator, separating them. Stewart Island, at the southern end, is much smaller. These three, with a number of small islands scattered round in that great ocean region, make up the Dominion of New Zealand.

Running through New Zealand is a line of lofty mountains like the Alps of Europe and the Cascade Mountains of Canada. These mountains are known in South Island as the Southern Alps. Here they rise to over 12,000 feet in Mount Cook, and there are glaciers, Alpine lakes, and beautiful river gorges, such as usually occur among Alpine mountains. Lake Manapouri is one of the most beautiful lakes in the world, as irregular in shape and as grand as far-famed Lake Lucerne. In North Island, where the line of mountains lies to the eastern side, the range rises to about 5700 feet.

On the western side of this line of Alpine mountains in North Island is a volcanic region, with lofty volcanoes and some of the most famous geysers and other hot springs

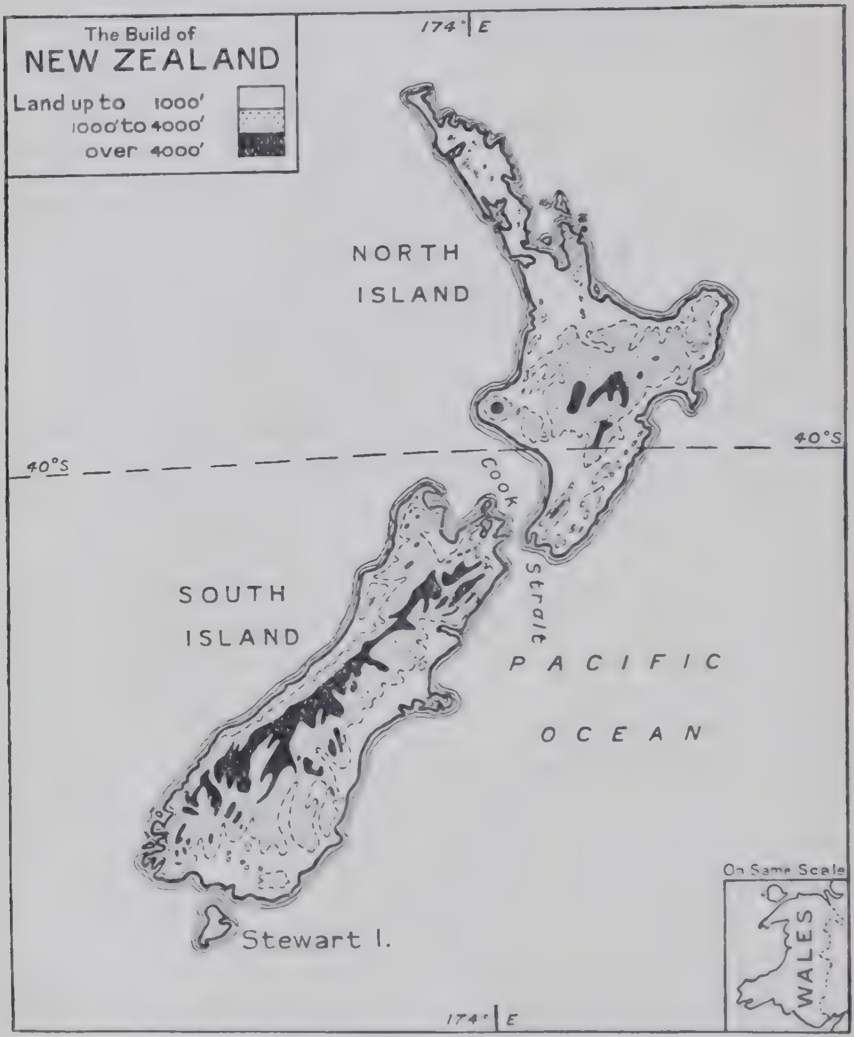

The Build of
NEW ZEALAND
Land up to 1000′
1000′ to 4000′
over 4000′
174° E
NORTH ISLAND
40°S
Cook Strait
SOUTH ISLAND
PACIFIC OCEAN
Stewart I.
On Same Scale
WALES
174° E

FIG. 13.

in the world. Mount Ruapehu is over 9000 feet high and Mount Egmont over 8000 feet. There are also many beautiful lakes in North Island, the largest of them being Lake Taupo, in the middle of the island.

New Zealand has numerous rivers, but none of them can be of very great length. The Waikato, which flows from Lake Taupo, is the longest, and it has a service of river steamers on a great part of its course of 220 miles.

The coastal scenery of New Zealand is of great beauty and variety. Some of the fiords of South Island are as grand as any fiords in the world; and the rias of North Island are also very beautiful. There was a fine model of Milford Sound, in South Island, in the Empire Exhibition in 1925.

The Climate of New Zealand.—New Zealand is surrounded by the great ocean, and there is little lack of rain. Only in the south-east of South Island, in the rain shadow of the high Alps, is it too dry for agriculture, and here careful irrigation is putting the matter right. The west winds of the Southern Ocean bring much rain to the western side of the mountains. Hokitika, on the west coast of South Island, has 115″ a year on the average; Mount Egmont, in North Island, has about 100″ a year. These may be compared with 44″ at Falmouth, England, and 56″ at Valencia in south-west Ireland. The lowest rainfall known in New Zealand is at Clyde, in the rain shadow of the Southern Alps: here it averages only 14″ a year. On the whole, South Island has more rain than North Island.

The sunshine records of both islands are high, seldom falling below 2000 hours a year; and at Napier, in North

Island, the average is 2500 hours a year. London has about 1560 hours per year on an average.

Such a land, except in the high mountains, is good for the farmer, and New Zealand is therefore a splendid country for wheat and fruits and for sheep and cattle. The four most important exports in 1924 were wool, butter, frozen meat, and cheese, in the order given. The butter was valued at over £11,000,000, while the cheese was valued at £7,000,000. The exports of wool amounted to 210,000,000 lbs.

There is great and varied mineral wealth, which includes coal, gold, silver, and iron-ore. Over 2,000,000 tons of coal were mined in 1924, which satisfied the needs of the Dominion and left a portion over for export.

New Zealand is mainly a white man's country; but there are over fifty thousand Maoris, the natives of the islands. The population is now about 1,430,000, so that there is plenty of room for thrifty, hard-working settlers.

The population of the chief cities and towns is as follows (1st April 1924):—

Auckland	172,935	Dunedin	75,755
Christchurch	115,360	Wanganui	24,985
Wellington (the Capital)	114,510	Invercargill	20,520

QUESTIONS AND EXERCISES

CHAPTER X

1. How far is it from the British Isles to New Zealand? There are four possible routes. Which is the longest? How long do letters take to go from London to Wellington?

2. The area of New Zealand is about 104,000 square miles. Compare this with Victoria (Australia), the British Isles without the Irish Free State, and the three maritime provinces of eastern Canada.
3. What are Alpine mountains? In what parts of the British Empire are true Alpine mountains found?
4. What are fiords and rias? In what parts of (*a*) the British Isles, (*b*) Canada, do they occur?
5. Name four islands in the British Empire which are in the track of the westerly winds and in temperate zones.
6. Which Australian State has a climate most like that of South Island, N.Z.? In what respects are the climates alike, and in what respects do they differ?
7. Make a list of the products of New Zealand, if any, which you are in the habit of using regularly.
8. Compare the latitudes of the six cities and towns given above with the latitudes of (*a*) towns of similar population in Britain, (*b*) towns of similar population in Canada.
9. What is the average population per square mile in New Zealand and Great Britain respectively?

CHAPTER XI

THE BRITISH EMPIRE IN THE PACIFIC OCEAN

A LITTLE more than 1000 miles east of Australia is the great line of volcanic islands of which New Zealand forms a part. Many other islands in this belt are members of the Empire.

The Solomon Isles, together with the Santa Cruz group and some smaller islands, are ruled either directly or by mandate from the League of Nations under the Empire. They lie about 10° south of the Equator, and are mountainous islands with active and extinct volcanoes. Mount Balbi is over 10,000 feet high. These islands grow coco-nuts, rubber, pineapples, and bananas, and the chief exports are copra, ivory-nuts, and the beautiful trochus shell.

There are other islands in this volcanic belt which are attached for government either to Australia or to New Zealand. Many of those south of New Zealand are not inhabited, but the New Zealand Government maintains a supply of provisions and clothing for shipwrecked sailors in one of the largest of them. About 500 miles to the south-east of New Zealand is a group of rocky uninhabited islands, which are almost exactly on the opposite side of the globe from the English Channel; these are the Antipodes Islands.

Beyond the east Australasian line of volcanic islands stretches the vast Pacific Ocean, occupying one-third of the earth's surface; in the western half are thousands of scattered islands, some of which are British. The Fiji group lies about 15° to 20° south of the Equator and a little over 1100 miles north of New Zealand. The islands are mountainous and volcanic, with an equable, healthy climate and fertile soil. The exports are sugar, copra, bananas, maize, rubber, and trochus shell. Cotton-growing is being tried, and gives promise of success.

About 400 miles east of the Fiji group are the Tonga or Friendly Islands. Some of them are volcanic mountains rising up from the floor of the ocean, and surrounded by coral reefs. Others show only the coral rock. The climate is similar to that of the Fiji Islands, warm and equable, with a heavy rainfall. Copra is the chief export, but cotton, sugar, and rubber can be produced successfully.

Roughly 1000 miles still farther east, and in the same latitude, are the Cook or Hervey Islands, which are under the Government of New Zealand. There are fourteen principal islands, with a total population of about 14,000. The exports in 1923 were bananas, oranges, tomatoes, coco-nuts, copra, and trochus shell. The British Empire has an important wireless station on Rarotonga, one of the best known of these islands. This is nearly in the middle of the Pacific Ocean.

North-east of the Tonga Islands is the Samoa group, of which the western part is at present governed by New Zealand under mandate of the League of Nations. The islands are fertile and the climate is equable, but violent storms sometimes do considerable damage. Coconuts and cocoa are the chief exports, but cotton, bananas, and sugar-cane are being tried. There is a wireless station on Apia, one of the group.

North of the three groups, Fiji, Tonga, and Samoa, are four scattered groups of smaller islands—Lagoon or Ellice Islands, Union Islands, Phœnix Islands, and Gilbert Islands. The Equator passes through the middle of the last-named group. They are low coral islands, exporting phosphate and coco-nuts. The Government of New South Wales and the Royal Society of London some years ago made a boring down through the coral rock of Funafuti, one of the Lagoon or Ellice Islands, to find if the corals had built their reefs on a submarine volcano. The boring was continued to a depth of over 1200 feet, but nothing except coral rock was found.

Slightly west of the Gilbert Islands, and almost on the Equator, lies Nauru or Pleasant Island, which has been governed by the Australian, New Zealand, and British Governments since the Great War. It exports large quantities of phosphate rock—a most valuable manure.

There are many other scattered islands and groups of islands which are under British rule or protection. One of these deserves brief mention. Christmas Island, which lies 2° north of the Equator, in the middle of the Pacific Ocean, is the largest atoll or ring-shaped reef of coral in that great ocean, being over 100 miles in circumference. From this and from many other scattered islands coco-nuts and guano are collected, chiefly by British trading ships.

The natives of the scattered islands of the Pacific present one of the most difficult problems to the student of races of men. We will content ourselves with the mention of one of the best known groups. These are the Polynesians, who inhabit many of the islands in the south and east of the great ocean. They are well-built and active people, with olive-brown skin, oval faces, and wavy hair. Most of the others are of mixed race.

QUESTIONS AND EXERCISES

CHAPTER XI

1. The longitudes of the following town and islands are: Auckland (N.Z.), 175° E.; Apia (Samoa), 172° W.; Rarotonga (Cook Islands), 160° W. Find the time at each when it is noon at Greenwich.
2. The Fiji Islands lie partly on one side and partly on the other side of the meridian of longitude 180°. Is this 180° E. or 180° W.? What is the real time when it is noon at Greenwich? Is there a real puzzle here?
3. Christmas Island is an atoll. What does this mean? It is 2° N. of the Equator. What do you know about the length of day throughout the year, and what do you expect its climate will be?
4. How far is it across the Pacific Ocean from Sydney (N.S.W.) to Victoria (B.C.)? and how far is it by the shortest sea route from Auckland (N.Z.) to Singapore?

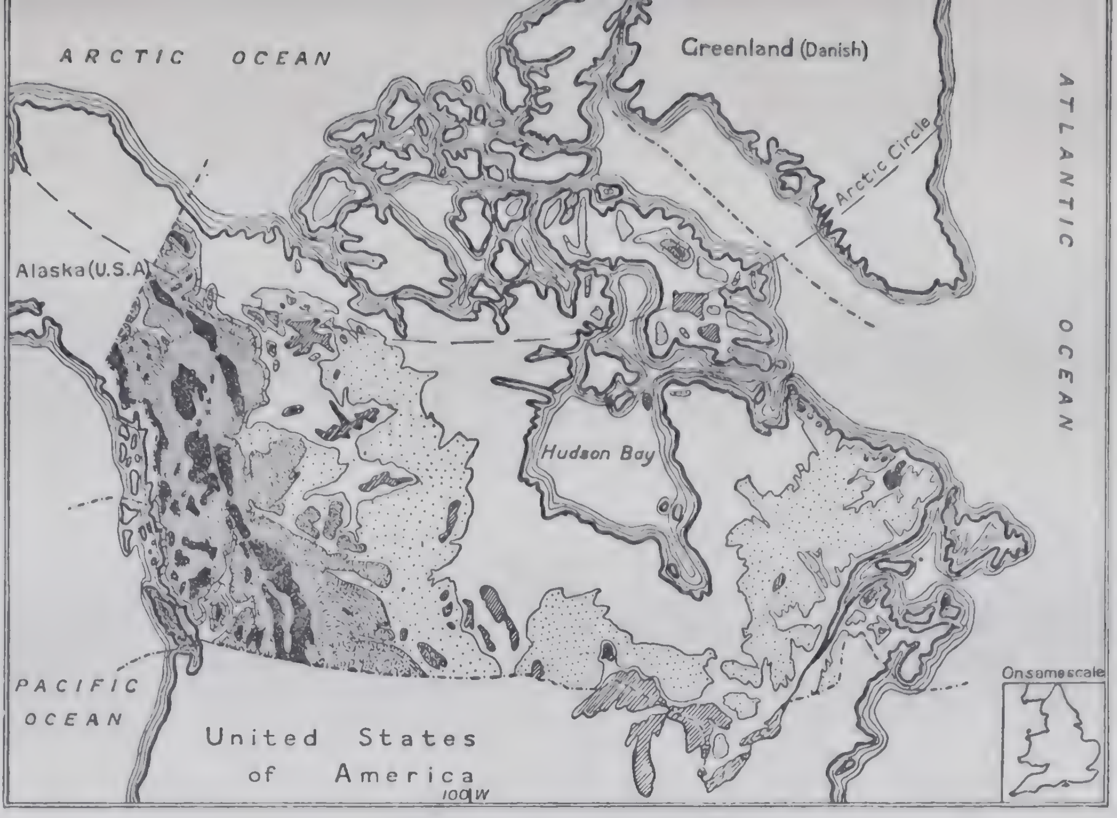
CHAPTER XII

CANADA

A VOYAGE of 6800 miles from Sydney (N.S.W.) across the mighty Pacific Ocean and across the Equator would bring us to the west of Canada, that great British Dominion in North America. The area of this dominion is about 3¾ million square miles, which is even greater than that of Australia, or more than thirty times that of the British Isles. Canada stretches right across the continent from the Pacific to the Atlantic Ocean, a distance of about 3200 miles.

The Build of Canada.—Canada shares in the build and the climatic features of North America, but we must remember that it is in the north of that continent. There are three great main divisions. In the west is a vast mass of highlands, about 800 miles in width, made up of three roughly parallel lines of Alpine or folded mountains, with plateaux and valleys between. The outer line of mountains is the Pacific Coast range; farther to the east are the Cascade Mountains, and then an interior tableland, much cut up by the deep gorges of the Fraser and Columbia rivers; after this we come to the Rocky Mountains, which form such a mighty barrier between the west and the middle of Canada.

The second main division consists of the great Middle Plains—the high plains with not much rain near the



The BUILD of CANADA

Land up to 1000′ ☐ 1000′–2000′ ▨ 2000–5000′ ▨ over 5000′ ■

FIG. 14.

Rockies; the prairie plains nearer the middle of the continent; the forested plains to the north of the prairies; and, finally, the Arctic plains or tundra of the extreme north. It is largely differences in climate that make it possible to separate these plains of middle Canada into distinct parts.

The third great division is the Eastern Highlands, consisting of two distinct parts—the Laurentian Highlands from the Great Lakes and the St Lawrence River northward, and the Appalachian Highlands, filling nearly all the region east and south of the St Lawrence.

Canada has a wonderful system of rivers: we can distinguish four main groups:

(1) West of the Rocky Mountains are the rivers which flow to the Pacific Ocean; of these the most important are the Fraser and the Columbia, and their tributaries. These have cut very deep gorges through the Cascade Mountains and in the plateau already mentioned. The Fraser River is wholly in Canada; the lower course of the Columbia is in the United States. These rivers are noted for the salmon, which ascend from the sea in enormous numbers in the spring and summer.

(2) In the north and north-west of the great plains is the system of the great river, Mackenzie: this is made up of the waters of big rivers which flow from the Rocky Mountains eastward, together with the drainage of the north-western series of great lakes.

(3) The middle and southern plains are drained by the two rivers Saskatchewan (North and South), which unite and flow into Lake Winnipeg; the outward drainage of this lake, to which has been added the volume of other rivers, is carried northward to Hudson Bay by the Nelson River.

(4) The fourth river system of Canada is that of the St Lawrence, which carries off the surplus waters of the five great lakes—Superior, Huron, Michigan, Erie, and Ontario. Scores of rivers flow *into* these lakes: the outflow *from* the last of them takes the name St Lawrence. The river which flows from Lake Erie to Lake Ontario is the Niagara, which forms the famous falls of that name. Many tributaries flow into the St Lawrence, the most noted being the Ottawa, which joins it at Montreal. Ocean-going steamers can go up the St Lawrence as far as Montreal, from which point other steamers connect with the great lakes by river and canal. Steamers can also ascend the Nelson River from Hudson Bay. The drawback is that these routes are frozen up for some months in winter. The ports of British Columbia in the west, and some of those of the Maritime Provinces in the east, are not closed in this way.

The Coasts of Canada.—The coast. of British Columbia is much like that of the west of South Island, New Zealand; there are grand, deep fiords, with high, cliff-like walls, extending for many miles inland. These fiords make good harbours, as well as fine fishing grounds. Off the coast lie many islands, of which the largest is Vancouver Island, with an area of 20,000 square miles. The eastern coast of Canada also shows fiords and fine rias.

The Climate of Canada.—The whole of Canada is in the cool temperate zone, except a part of the far north, which is within the frozen zone; hence there are no trade winds or monsoons of the Indian type to take into account. On the whole, we may make four broad climatic divisions, with, of course, many smaller variations here and there. British Columbia, especially near the coast, has a climate like that of the British Isles, Tasmania, or South Island, New Zealand. There is a good deal of rain brought by the westerly winds from the Pacific Ocean, and the difference between the average temperatures of January and July is not more than 25° as a rule. On the west side of the Cascades there is a heavy rainfall, most of it coming in winter: on the east side of these mountains there is a rain shadow, with a smaller total, and summer receiving the bigger share.

In the middle of Canada there is a real continental climate; that is, hot summers and cold winters, with more summer than winter rain, and a rather low total. Near the eastern slopes of the Rocky Mountains the rainfall is low, but in the middle of the continent there is more, and the summers are warm and sunny. At Winnipeg the rainfall is about 21″ a year, or, roughly, equal to that of some parts of Essex (England), or of Dubbo in the plains of Australia. About three-fourths of Winnipeg's rain comes in the six months, April to September. The difference between the temperatures of summer and winter is very great, about 68°, as compared with 21° at Victoria, B.C. We can understand the old joke which said that "In Winnipeg they sell milk by the pound in winter and butter by the quart in summer." The winters are healthy in spite of being so cold, because the air is dry and clear.

In the far north of the central plains there is a real tundra climate, with long and very cold winters, and short, moderately cool summers, and the rainfall (or snowfall) is low.

Eastern Canada has rain all the year round: for example, Quebec City has an average of 41″ per year, with not less than 2″ or much more than 4″ in any one month.

The winters are cold, though not so cold as in the middle of Canada, and the summers are warmer than those of British Columbia in the same latitude. The same holds good for the three Maritime Provinces, as well as for Ontario and Quebec.

CHAPTER XIII

CANADA (*continued*)

THE climate rules the **agriculture** very largely, and it will be convenient to study the produce of three of the climatic divisions which we discussed in the last chapter.

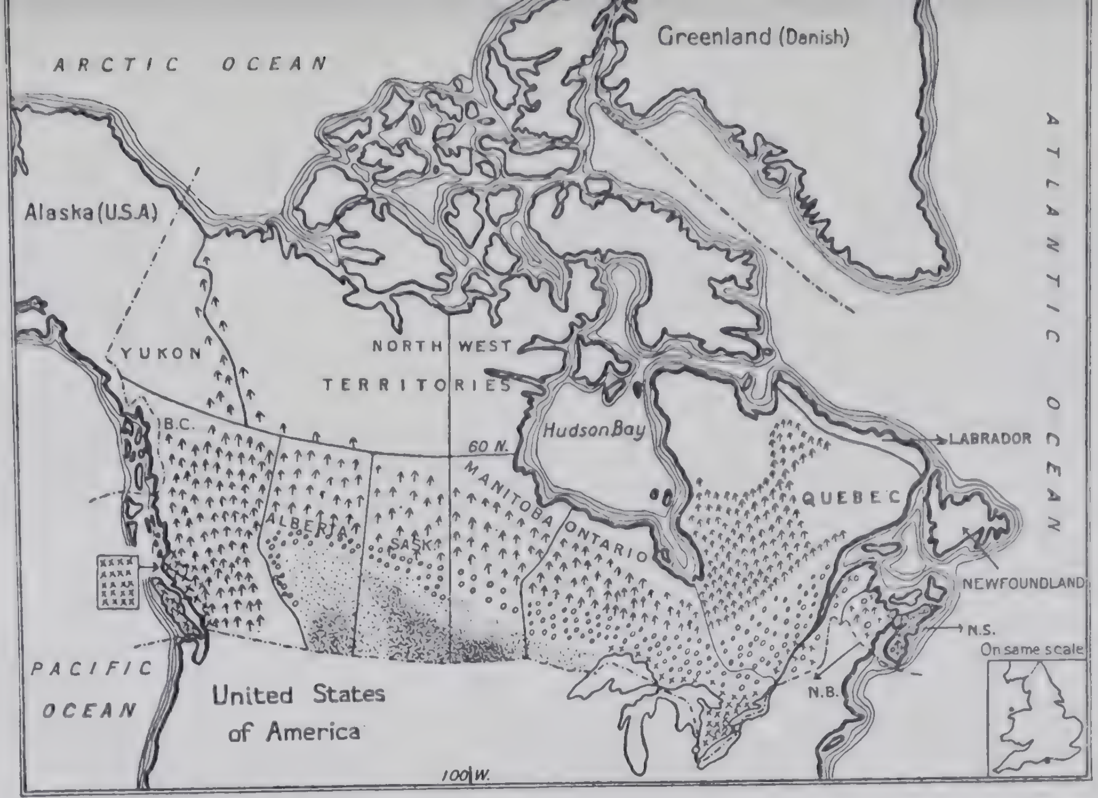
(*a*) The farming of British Columbia is similar to that of the British Isles, Tasmania, and South Island, New Zealand. The cereal crops are wheat and oats, while fruits such as apples, pears, plums, and cherries do very well. This region is also suitable for dairy-farming and sheep-rearing.

(*b*) Most of the great plains (excepting the barren grounds of the Arctic Region) may be regarded as adapted to one of two types of farming. In the west, in the rain shadow of the Rockies, it is too dry for much wheat-growing, and here the farmer depends upon cattle and sheep, unless he can obtain water by irrigation. In the prairies or middle plains there is one of the best regions in the world for the growing of wheat and oats. On account of the very cold winters, nearly all the wheat is sown in April or early May; the rain comes at a suitable time to swell the young plants, and the fine, warm summers ripen the crop rapidly; it is harvested in August and early September.

(*c*) Ontario grows a good deal of **winter** wheat; and near the Great Lakes fruits are grown and exported in large quantities. In the three Maritime Provinces and in the valley of the St Lawrence, apples, pears, cherries, gooseberries, and currants are grown: these currants are not, of course, the small dried grapes of the Mediterranean regions. Oats and winter wheat also do very well, and dairy-farming with pig-rearing is a prosperous industry: butter, cheese, hams, and bacon are exported.

Canada has enormous forests even yet, though a great deal of lumbering has been done. Vast quantities of timber are exported, and also much wood-pulp and paper. The timber is cut in winter, and dragged over the hard ground to the frozen rivers, and is floated down in the spring or early summer to be cut up, or ground into wood-pulp, by water-power at the great timber ports on the rivers.

The Mineral Wealth of Canada.—Canada is another member of the British Empire that is rich in mineral wealth of several kinds. Coal is found in the eastern Maritime Provinces, chiefly in Nova Scotia and its dependency, Cape Breton Island, in the Province of Alberta, and in British Columbia and Vancouver Island. Over 13,000,000 tons of coal were produced in Canada in 1925. The Dominion takes a very important place in the mining of metals: in gold it was the third in the world in 1924, coming after the Transvaal and the United States of America. In silver it also came third, following Mexico and the United States. In nickel Canada was easily first, producing from Sudbury, in Ontario, more than three-



CANADA showing approximate distribution of Forestry ↑↑↑, Cattle and sheep ⁰⁰⁰, Wheat ∷∷, Fruit ×××

FIG. 15.

quarters of the world's supply. Other important metals are copper, lead, zinc, and iron. Asbestos is the most important mineral in the Province of Quebec, and more than half the world's supply comes from that region.

Canada has been very enterprising in the matter of railway construction, and it is well to remember that many of the important mineral regions have been discovered or opened up during railway surveys or construction.

Water-power is of tremendous importance in Canada, and is often spoken of as "white coal," which reminds us that it is doing the work of coal. Canada is remarkably well-to-do in this respect, and already about 3½ million horse-power, as electric-power, is used in the Dominion. At the present time very great advances are being made; immense new schemes are in progress, and the above figures will soon be far surpassed. A distinguished Canadian writer calculates that Canada now saves about ninety million dollars (or, roughly, £18,000,000) a year by using electric-power developed from waterfalls in place of power obtained from coal and steam.

The great power-stations at Niagara are well known throughout the world, but there are very many others. Ontario, Quebec, Nova Scotia, New Brunswick, and British Columbia are the provinces which appear to have the greatest opportunities; but even Winnipeg, in the great plain, has great water-power plants for electricity in operation. At present, Ontario, with its numerous rivers and enormous stores to draw upon, leads the way in the use of water-power.

The Provinces.—The Dominion of Canada consists of nine provinces: from east to west they are Nova

Scotia, New Brunswick, Prince Edward Island, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia, together with the two territories North-West and Yukon, which have no separate parliaments. The total population is about 9,000,000, or about one and a half times that of Australia.

The majority of the people of Canada are of Anglo-Saxon and French stock. The former constitute about 55 per cent. and the latter about 27 per cent. of the whole. The French are strongest in the Province of Quebec, where about four in every five are of that "nationality," and where French is the common language. Even descendants of the Scottish Highlanders of Wolfe, who were settled there after the capture of Quebec, speak that language, and there are villages in which live Macphersons and Macdonalds who can only make themselves understood in French. The English-speaking British are in a great majority in every other province, more especially in the three Maritime Provinces of the east. In the lumber camps and in the mining districts of most of the Provinces there are many Germans, Scandinavians, and Slavs from central and eastern Europe; these are also common on the farm lands of the great prairies. Hindus, Japanese, and Chinese are most common in British Columbia, where they number about 25,000.

There are native Indians in each of the nine Provinces and the two Territories. Ontario and British Columbia have each about 26,000, most of them living in the special reserves set apart for them. Some of the Indians still lead lonely lives as hunters and fishermen on the prairies and in the forests. The Indians are least numerous in the Maritime Provinces, and Prince Edward Island, the most densely peopled province of the Dominion, had less than 300 at the last census.

There were then over 3000 Eskimos, so far as is known, most of them living on the tundras and the barren grounds of the far north.

The following is a list of the chief cities and towns of Canada, with their populations (Census 1921):—

Montreal (Quebec)	618,506
Toronto (Ontario)	521,893
Winnipeg (Manitoba)	179,087
Vancouver (British Columbia)	117,217
Hamilton (Ontario)	114,151
Ottawa (Ontario)	107,843 [1]
Quebec (Quebec)	95,193
Victoria (Vancouver Island, British Columbia)	83,277
Calgary (Alberta)	63,305
London (Ontario)	60,959
Edmonton (Alberta)	58,821
Halifax (Nova Scotia)	58,372
St John (New Brunswick)	47,166

QUESTIONS AND EXERCISES

CHAPTERS XII AND XIII

1. How long does a great liner take to sail from Sydney, N.S.W., to Vancouver, B.C.? How do these towns differ in their seasons of the year and in their time of day?
2. In what respects is the build of Canada similar to that of Australia, and in what respects is it different?

---

[1] Ottawa is the Dominion capital: it is situated on the Quebec-Ontario border, on the Ottawa River.

3. Why is there less rain on the east side of the Cascade Mountains than on the west side? In what respects are the high plains of Alberta similar to and different from the Canterbury Plains of New Zealand?
4. How do the lakes of Canada differ from those of Central Australia? Explain the difference.
5. Why cannot a vessel sail from the St Lawrence right through the great lakes? How has this drawback been to some extent overcome? What is proposed for the future?
6. Which Canadian ports are closed by ice in winter, and which are not so closed?
7. Why does Canada attach so much importance to the development of its water-power?
8. Write the names of the five great lakes in order of size. Which of them is entirely outside Canada?
9. Where does the Arctic or Frozen Zone begin? What is meant by the Arctic Circle?
10. Draw two similar diagrams which will show at a glance the rainfalls of Winnipeg and Halifax from the following figures:—

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
	"	"	"	"	"	"	"	"	"	"	"	"	"
Winnipeg	0·9	0·8	1·3	1·6	2·2	3·3	3·2	2·2	1·9	1·4	1·0	0·9	20·7
Halifax .	6·0	4·7	5·1	4·6	3·8	3·8	3·7	4·6	4·1	5·5	5·9	5·5	57·3

11. Compare the British Isles, India, and the five self-governing Dominions as to the amount of coal mined by each.
12. What is asbestos used for? From what other parts of the Empire is it obtained?

CHAPTER XIV

NEWFOUNDLAND

THIS is the oldest British colony. John Cabot found the island in 1497, and when he came home from his discovery of the "New-found-land," King Henry VII gave him a reward in these terms—"August 10th: To him that found the new isle, £10"—worth far more at that time.

The island lies across the mouth of the St Lawrence: it is roughly in the same latitude as the Channel Islands and the south of England. The south of the island is about as near the Equator as the south of New Zealand. Newfoundland itself has an area of nearly 43,000 square miles, or almost exactly the same as North Island, New Zealand. It is not part of the Dominion of Canada, but has its own separate parliament and capital, which is why it is treated here in a separate chapter. A portion of the Labrador coast and its hinterland is included in the Government of Newfoundland.

It is only 1640 miles from the coast of Ireland; St John's, the capital, is 1930 miles from Liverpool and 1860 miles from Glasgow. It was this nearness to the British Isles that caused the first Atlantic telegraph cable, laid in 1858, to be carried to Newfoundland, and nearly all the telegraph cables across the Atlantic to North America are laid *via* Newfoundland. The first wireless message across the Atlantic was received at Signal Hill,

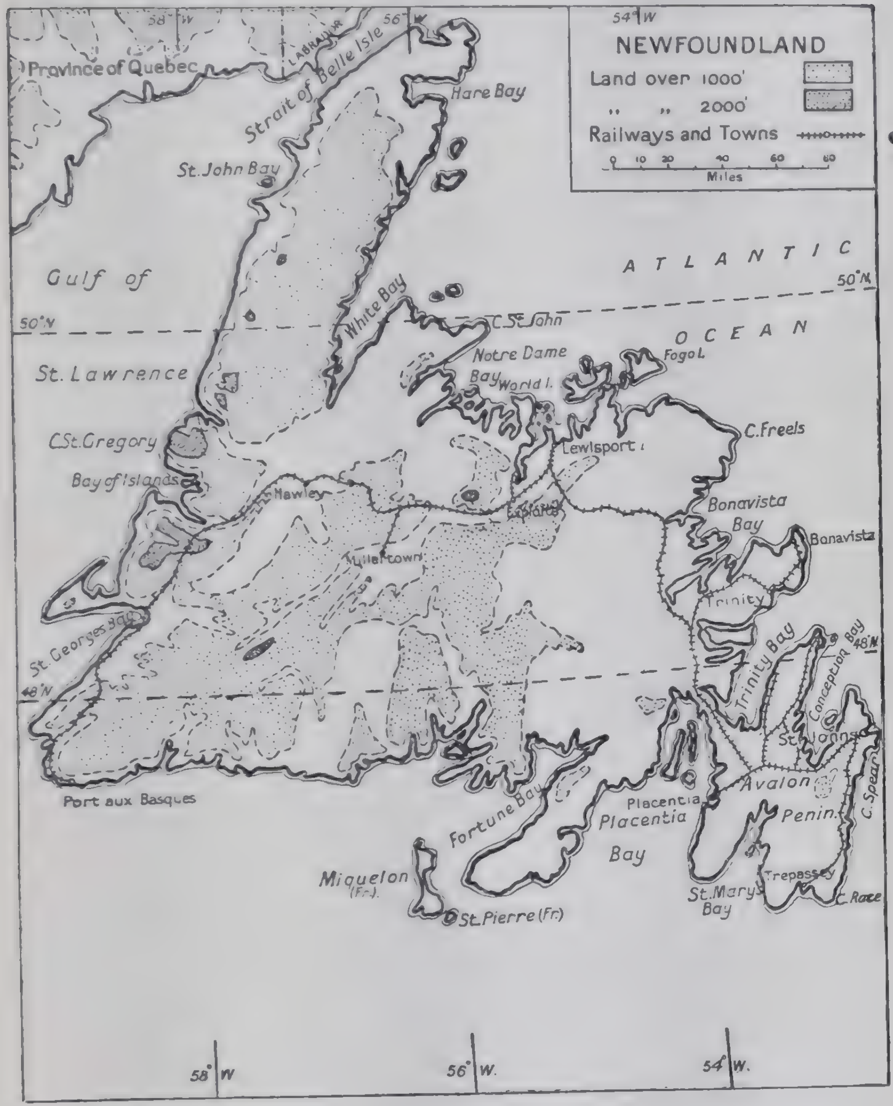

NEWFOUNDLAND
Land over 1000'
,, ,, 2000'
Railways and Towns
0 10 20 40 60 80
Miles
58° W
56° W
54° W
LABRADOR
Province of Quebec
Strait of Belle Isle
Hare Bay
St. John Bay
Gulf of
St. Lawrence
50° N
White Bay
C. St. John
ATLANTIC
OCEAN
Notre Dame
Bay
World I.
Fogo I.
C. Freels
Lewisport
C. St. Gregory
Bay of Islands
Hawley
Exploits
Millertown
Bonavista
Bay
Bonavista
Trinity
Trinity Bay
Conception Bay
48° N
St. Georges Bay
St. Johns
Avalon
Penin.
C. Spear
Placentia
Placentia
Bay
Fortune Bay
Port aux Basques
Miquelon
(Fr.)
St. Pierre (Fr.)
Trepassey
St. Marys
Bay
C. Race

FIG. 16.

St John's, in 1901, and there is now an important wireless station on Cape Race, continually exchanging messages with passing Atlantic liners. Alcock and Brown made the first flight across the Atlantic from Newfoundland to Ireland in 1919.

The island is much like Scotland in build, having similar mountains, an immense number of lakes, and grand, rocky coasts, with many fiords and rias, which afford shelter against Atlantic storms.

The climate is not unlike that of Stewart Island, New Zealand; the winters, however, are a little colder. The cold currents from the Arctic make the climate, on the whole, colder than any part of the British Isles, and they have, no doubt, some effect in producing the fogs which sometimes cover the coasts and the neighbouring seas.

The forests of Newfoundland contain enormous quantities of timber suitable for making into wood-pulp, and this and paper make up the second export of the island in value. The abundant water-power, as in Canada, is an important factor in this source of wealth. Of other vegetation, the rich crops of berries must be mentioned —strawberry, raspberry, bilberry, cranberry, and others— and these are collected by the children.

Newfoundland is also rich in **minerals**, among which iron-ore, copper-ore, and lead-ore with silver are the chief. The iron-ore deposits are of enormous extent and not difficult to reach. It is claimed that Newfoundland could supply the world's need of iron-ores for at least a century.

It is for its **fisheries**, however, that Newfoundland is best known: it is one of the great fishing regions of the world. East and south-east of the island lie the famous "banks," covered only by rather shallow sea. Here cod are caught in very great numbers, and dried cod was the first among the exports in 1924–25; herring, cod oil, lobsters, seal skins, and seal oil are other products of the sea and of the ice-floes that come down from the Arctic.

The leading exports in 1924–25, in order of value, were: dried cod, pulp and paper, iron-ore, seal oil, herring, tinned lobsters, cod oil, seal skins.

The population is about a quarter of a million—a small number for an island which has such stores of natural wealth and a climate that is bracing and healthy. St John's, the capital, had a population of 38,261 in 1923.

QUESTIONS AND EXERCISES

CHAPTER XIV

1. When did Columbus discover America? What part of the "New World" did he first see?
2. In temperate regions there is a marked difference between the climates of the west and the east of the continents. Write what you know of that difference and of the causes.
3. What differences do you expect there will be between the timber of Newfoundland and that of North Island, New Zealand?
4. What foods does Newfoundland need to import? How does Newfoundland pay for these imports?
5. Name several cities in the British Empire which contain roughly as many people as does the whole of Newfoundland.
6. How long does a large Atlantic liner take to go from Liverpool to St John's, Newfoundland?

CHAPTER XV

THE EMPIRE IN TROPICAL AMERICA

We have seen that North America consists of the Western Highlands, the Middle Plains, and the Eastern Highlands. If we follow these southwards to about the latitude of the Tropic of Cancer, we find that the latter two die out, and the first-named begins to change character and direction. North America finally becomes a mere narrow neck of land, only about thirty miles across at the narrowest parts, and in place of the plains and the eastern mountains we have deep, partly enclosed seas, and loops of mountainous, volcanic islands. The islands are called the West Indies, and the mainland is Central America. Among these islands and on the neighbouring mainland there are numerous units of the British Empire. These include mountainous islands, some of them volcanic, low coral islands, and low tropical plains, with the usual forest vegetation of such regions.

These British dominions may be grouped as follows: (1) The Bahamas, low coral islands; (2) the Leeward Islands; (3) the Windward Islands; (4) Jamaica, with Turks and Caicos Islands; (5) Barbados, which may claim to be the oldest British dominion in the sense that it has been British continuously since 1605; (6) Trinidad, with Tobago; (7) British Honduras, on the mainland of

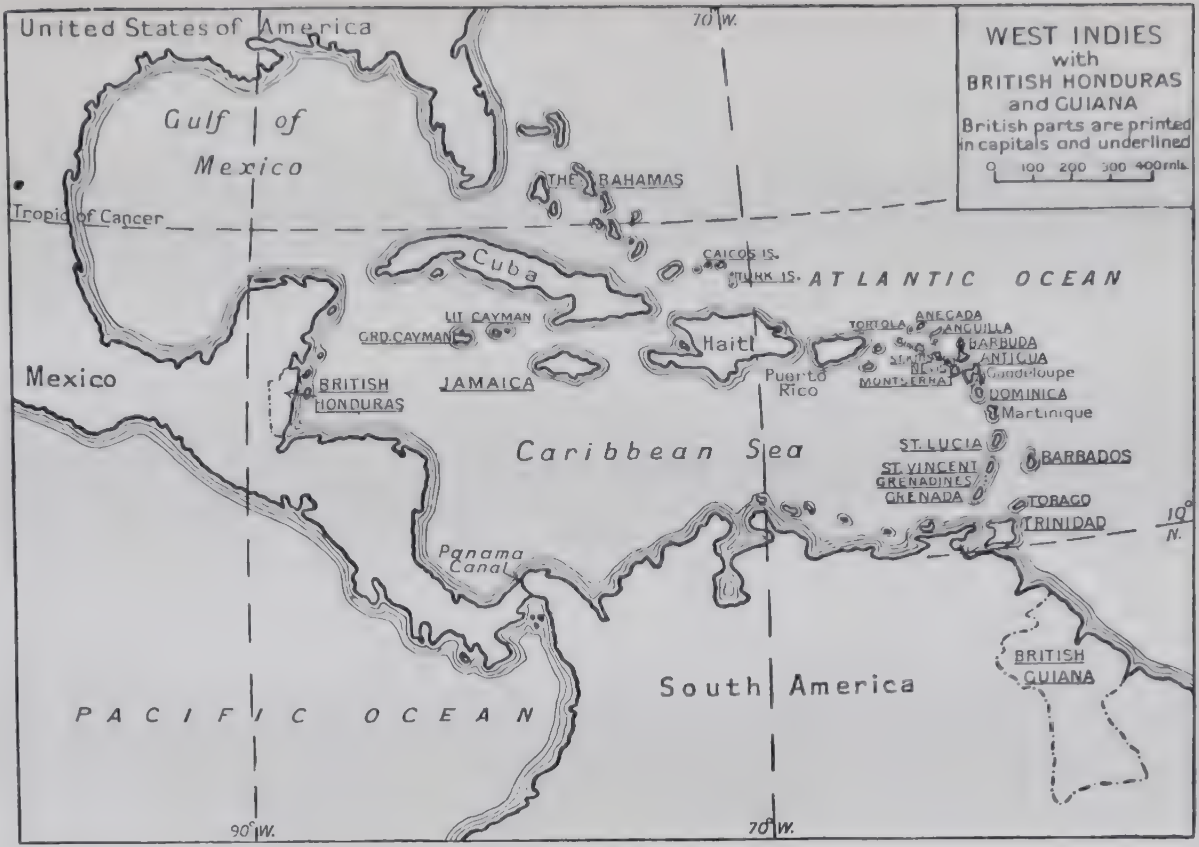

WEST INDIES
with
BRITISH HONDURAS
and GUIANA
British parts are printed in capitals and underlined
0 100 200 300 400 mls.
United States of America
Gulf of Mexico
Tropic of Cancer
Mexico
THE BAHAMAS
70° W.
CAICOS IS.
TURK IS.
ATLANTIC OCEAN
Cuba
LIT. CAYMAN
GRD. CAYMAN
JAMAICA
BRITISH HONDURAS
Haiti
Puerto Rico
TORTOLA
ANECADA
ANGUILLA
BARBUDA
ST. KITTS
NEVIS
ANTIGUA
MONTSERRAT
Guadeloupe
DOMINICA
Martinique
ST. LUCIA
BARBADOS
ST. VINCENT
GRENADINES
GRENADA
TOBAGO
TRINIDAD
10° N.
Caribbean Sea
Panama Canal
South America
BRITISH GUIANA
PACIFIC OCEAN
90° W.
70° W.

FIG. 17.

Central America; (8) British Guiana, on the mainland of South America.

The climate is tropical; that is, the temperature is always high, and as the lands are near the sea, or surrounded by it, there is generally abundant rainfall. The trade winds from the Atlantic bring most of the rain; hence the eastern side of these lands is almost always wetter than the west. With the exception of the lowlands of British Honduras and British Guiana, the climate is in most parts healthy, as the sea breezes tend to keep down malaria and other tropical diseases. Barbados, for example, on the extreme east of the region, and in the direct track of the trade winds, is regarded as quite a health resort.

The wealth of these British dominions is chiefly in the products of their forests and plantations. Sugar-cane, cocoa, bananas, pineapples, oranges, limes, spices, coffee, and coco-nuts make up a goodly list. The sugar of Jamaica, Trinidad, Barbados, and Guiana; the coffee of the hill slopes of Jamaica; the cocoa of Trinidad and Guiana; the limes of Montserrat and Dominica; the pineapples of the Bahamas; the bananas of Honduras; and the rice of Guiana may be given especial mention.

In addition to the above group, the sisal-hemp of the Bahamas; the valuable sea-island cotton of Barbados, the Windward and the Leeward Islands; balata from Guiana; mahogany from Honduras; greenheart timber from Guiana; and logwood from Jamaica and Honduras are important products which the rest of the Empire needs.

There is not a great deal of mineral wealth, but we may mention the gold of British Guiana, the wonderful deposits of asphalt of the Pitch Lake of Trinidad, the petroleum of the same island, and the manjak which is found very irregularly in the different strata in Barbados.

These numerous members of the Empire vary very considerably in size and population. British Guiana, the largest, has an area of nearly 90,000 square miles, or a little larger than the island of Great Britain, but the population is only about 300,000; Barbados, on the other hand, has an area of only 166 square miles, or about the size of the Isle of Wight, but its population is nearly 200,000; and there are many smaller islands in the Bahamas and in the Leeward and Windward Islands with areas of 30 square miles and even less. It would be a very useful exercise for the student to make a list of as many as possible of these British possessions, and then to endeavour to find the area and population of each.

The population of the West Indies includes only a very few Caribs and Arawaks, that is the original Indian inhabitants of the region. The most numerous element is now the negroes, descendants of the slaves who were brought from West Africa. There are also great numbers of half-breeds, many coolies from the East Indies, and of course some thousands of Europeans. The population of Jamaica may be taken as an example. The total population of this island in 1921 was 860,000; this included 660,000 blacks, 157,000 coloured people, 18,600 East Indians, 14,500 whites, and 3700 Chinese.

The population of British Guiana is a little over 300,000, of which 125,000 are East Indians and about the same number are negroes. There are about 6500 Indians of several tribes, living mainly in the forests of the south; and there are about 15,000 Europeans. The rest are of mixed race.

British Honduras has a population of 45,000, which includes about 1600 whites; the majority belong to mixed races descended chiefly from the original Indians and negro slaves. There are still some native Indians who live in forest villages in the west and north.

The principal towns in the West Indies, with their populations (1921), are:—

Kingston (Jamaica)	62,707
Port of Spain (Trinidad)	63,654
Bridgetown (Barbados)	13,486
Georgetown (British Guiana)	55,638

QUESTIONS AND EXERCISES

CHAPTER XV

1. Find the latitude and longitude of Kingstown (Jamaica), Bridgetown (Barbados), Georgetown (British Guiana), Port of Spain (Trinidad), Belize (Honduras), Nassau (Bahamas).
2. What are the uses of sisal, logwood, manjak, asphalt,[1] balata?
3. There are coaling stations in Jamaica, St Lucia, Barbados, Trinidad. Find these on a map. Why are coal- and oil-bunkering stations very important in those seas? What through route has not long been opened?
4. What is the distance in miles from each of the following to the northern end of the Panama Canal: Nassau, Kingston, Bridgetown, Port of Spain?
5. Compare the Mediterranean Sea with the Caribbean Sea and the Gulf of Mexico, in regard to depth, climate, and productions. Why could the name "Mediterranean" be applied to both regions?

---

[1] See the glossary.

CHAPTER XVI

THE EMPIRE IN THE ATLANTIC OCEAN

THERE are a number of islands of the Empire which lie well out in the Atlantic and away from any of the continents, and which are of considerable importance as coal- and oil-bunkering stations, naval stations, and cable and wireless stations; some of these are dealt with briefly in this chapter.

The Bermudas, a group of coral islands, are in the North Atlantic, nearly 600 miles from the coast of North America. There are some hundreds of small islands, of which about twenty are inhabited. The mild climate, due to their position in the ocean and to the effects of the Gulf Stream, makes them a favourite resort for people from Canada and the United States. They also produce early vegetables and flowers for the American markets, in the same way that the Scilly Isles and the Channel Islands serve the English markets. There is an important naval dockyard, and telegraph cables connect the islands with Nova Scotia, the Bahamas, and Jamaica.

Ascension is in the middle of the Atlantic, about 8° south of the Equator. It is a rocky, volcanic island, rising to about 2800 feet above sea-level. It is about 6 miles long by 5½ miles wide, and is included in the Government of St Helena.

St Helena is a slightly larger island lying about 750 miles farther south than Ascension, or about 16° south of the Equator. It also is volcanic in origin, and has a rugged surface, rising to about 2700 feet. Hemp, of the New Zealand type, is grown and lace-making is carried on, and some phormium[1] fibre and tow are exported. St Helena is a coal- and oil-bunkering station for the Admiralty, and telegraph cables connect it with St Vincent (one of the Windward Islands), West Indies, and with Cape Town. The island is famous as having been the exile home of the great Emperor Napoleon from 1815 to 1821.

Half-way between Africa and South America, in latitude 37° S., lies one of the loneliest island groups in the world, the **Tristan da Cunha** group. Vessels rarely call here, and the population of about 130 must lead a very lonely life. There is no telegraph and no regular post.

The Falkland Islands are in the South Atlantic, 300 miles east of South America, and about as far from the Equator as London is. They consist of two larger and many smaller islands, with a total area rather more than half that of Wales, or a little more than that of Jamaica. The islands are hilly and their coasts are rugged, but a good harbour is available at Port Stanley.

Though these islands are as near the Equator as southern England, the climate is not so good as that of the latter. The stormy westerlies keep the climate cool, though equable; the rainfall is distributed throughout the year, but there are no forests, as the high winds prevent the growth of trees. The chief local industry is sheep-farming, and wool is the first domestic export. A great whaling fishery, however, is centred on Port Stanley, and the exports of whale produce in 1923 were valued at nearly £3,000,000. There is a wireless station which can communicate with South America, and so get in touch with the outside world.

---

[1] See page 142.

Included in the Government of the Falklands are South Georgia—a desolate, glaciated island with a permanent whaling port—and the South Shetlands, the South Orkneys, Graham's Land, and the Sandwich Group. These are visited by whaling vessels during the summer season.

QUESTIONS AND EXERCISES

CHAPTER XVI

1. What islands of the British Empire in other parts of the world are in nearly the same latitude as the Bermudas? Compare their times with that of the Bermudas.
2. Write down the latitude and longitude of Ascension, St Helena, Tristan da Cunha.
3. Compare the latitudes of Newfoundland, the Falkland Isles, Stewart Island. Also find what is the time of day in (*a*) Newfoundland, (*b*) New Zealand, when it is noon in the Falkland Islands.
4. Compare the positions of South Georgia and the Orkney Islands with respect to the Equator. Are their climates the same? Explain as fully as you can.

CHAPTER XVII

THE UNION OF SOUTH AFRICA

BEFORE we can understand the British Empire in Africa we must glance briefly at the continent itself. Africa is a big, compact continent, with no great inlets of the sea such as Hudson Bay in North America and the North Sea in Europe. Therefore the influence of the oceans does not penetrate so far inland as in these other continents. The Equator runs across it, dividing it into a bigger North Africa and a lesser South Africa. The continent extends almost equally north and south of the Equator, very nearly 35° in each case; hence its climatic zones are, in a measure, balanced on each side of the Equator. This is, however, broken down somewhat, because, on the one hand, South Africa has the open ocean on three sides of it; whilst, on the other hand, North Africa has a part of the great land mass of Asia close to its north-eastern corner, and the Mediterranean Sea on its long northern side has not quite the same influence on the climate as the open ocean. Further, the area of Africa north of the Equator is about twice that of the part south of the Equator, and on this account, also, much of the north is less influenced by the ocean than is the south.

In another respect Africa is quite different from Europe, Asia, and the two Americas. It has no long lines of Alpine mountains running through it and directing its build, so to speak. It is mainly a great plateau with a narrow coastal plain. The great rivers which descend from the plateau are less navigable than are the great rivers of the other continents, and are less useful for irrigation purposes. On the other hand, in the age of water-power which seems to be coming, they should prove very valuable. The engineers tell us that Africa has reserves of about 190,000,000 horse-power, out of the world's total of 430,000,000. Africa is easily the first of the continents in this respect.

In this great continent there are many units of the Empire. We will study them in four groups: I. The Union of South Africa, with some neighbouring protectorates. II. The Southern Tropical dominions. III. The North-Eastern Tropical dominions. IV. British West Africa.

The Union includes four provinces—Cape of Good Hope, Natal, the Transvaal, and the Orange Free State. The whole of this region is a land of plateaux, with only a narrow coastal plain; different parts of the plateaux are known as High Veldt, Bush Veldt, Middle Veldt, Great Karroo, and Little Karroo. Considerable portions of these plateaux are over 5000 feet high; and the Drakensberg, which is really an uplifted edge, rises to over 10,000 feet.

The climate is somewhat similar to that of Southern Australia, which is in almost the same latitude. The south-east receives trade winds which blow from the Indian Ocean; hence there is a fairly heavy rainfall, especially where the winds are rapidly cooled on rising to the plateau. There is most rain in this part in summer, as may be seen from the records of Durban, on the east

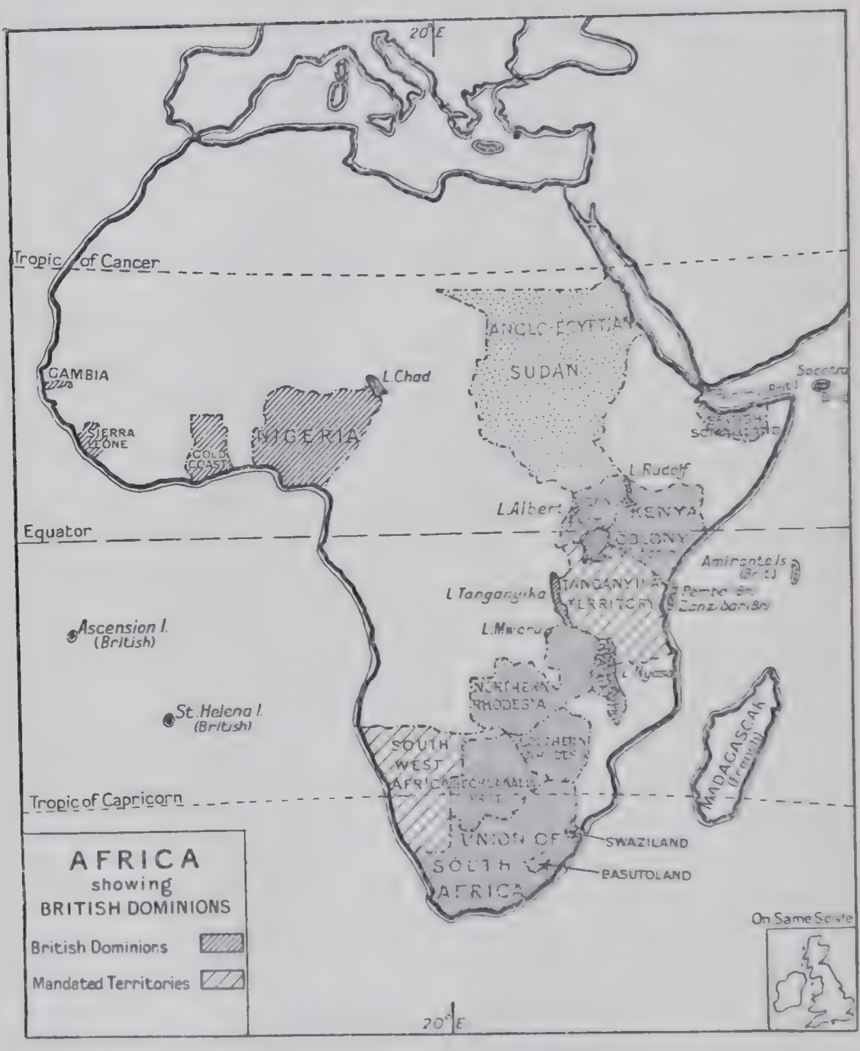

20° E
Tropic of Cancer
GAMBIA
SIERRA LEONE
GOLD COAST
NIGERIA
L. Chad
ANGLO-EGYPTIAN SUDAN
Socotra
L. Rudolf
L. Albert
KENYA COLONY
Equator
Amirante Is (Brit.)
L. Tanganyika
TANGANYIKA TERRITORY
Pemba Is.
Zanzibar Is.
L. Mweru
L. Nyasa
NORTHERN RHODESIA
Ascension I. (British)
St. Helena I. (British)
SOUTH WEST AFRICA
MADAGASCAR (French)
Tropic of Capricorn
UNION OF SOUTH AFRICA
SWAZILAND
BASUTOLAND
AFRICA showing BRITISH DOMINIONS
British Dominions
Mandated Territories
On Same Scale
20° E

FIG. 18.

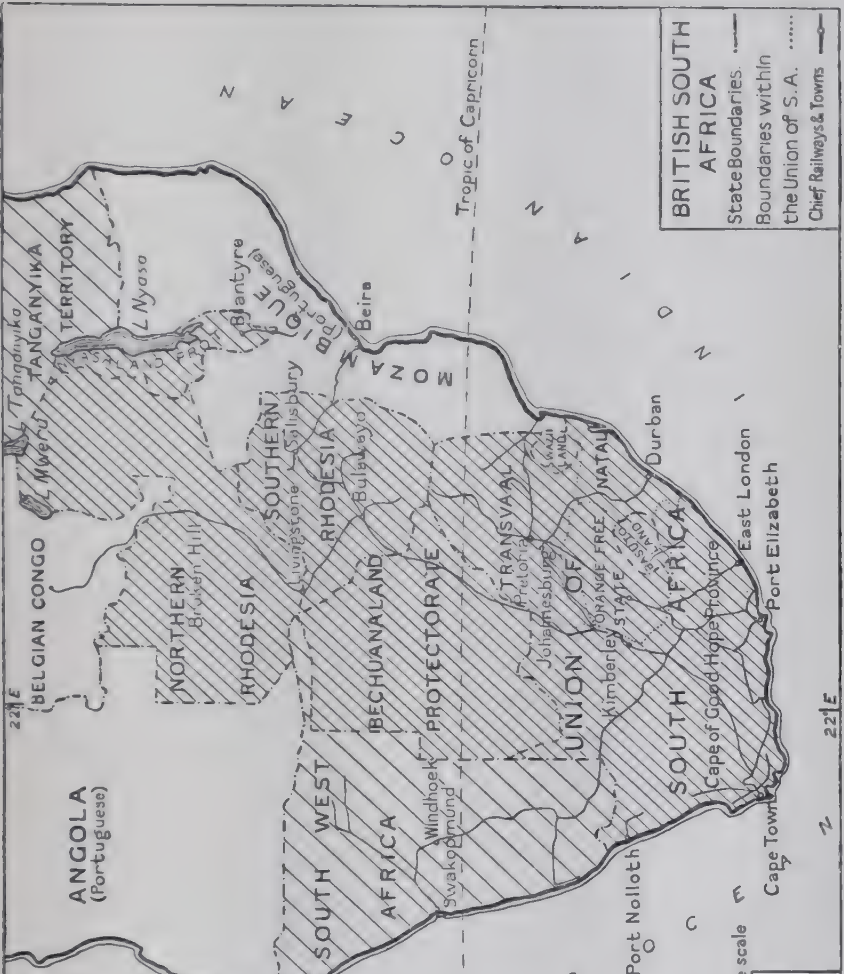

BRITISH SOUTH AFRICA
State Boundaries
Boundaries within the Union of S.A.
Chief Railways & Towns
BELGIAN CONGO
L. Tanganyika
L. Mweru
TANGANYIKA TERRITORY
L. Nyasa
NYASALAND
Blantyre
MOZAMBIQUE (Portuguese)
Beira
Tropic of Capricorn
INDIAN OCEAN
ANGOLA (Portuguese)
NORTHERN RHODESIA
Broken Hill
Livingstone
SOUTHERN RHODESIA
Salisbury
Bulawayo
BECHUANALAND PROTECTORATE
SOUTH WEST AFRICA
Windhoek
Swakopmund
TRANSVAAL
Pretoria
Johannesburg
SWAZILAND
NATAL
Durban
ORANGE FREE STATE
BASUTOLAND
Kimberley
UNION OF SOUTH AFRICA
Cape of Good Hope Province
East London
Port Elizabeth
Cape Town
Port Nolloth
ATLANTIC OCEAN
22½E
On same scale
WALES

FIG. 19.

coast of Natal; here the average rainfall is 39·7″ per year, 27·5″ falling in the six summer months, October to March. The rainfall is at least 45″ on the high parts of the Drakensberg, but it rapidly becomes less as we pass westward from the raised edge of the plateau. At Bloemfontein the average is 22″, at Kimberley 18″, and when we reach the west coast it has dropped to two or three inches.

The south-west corner has the Mediterranean type of climate; that is, the winds are westerly in winter and bring the rain, and the summers are dry and warm. The average rainfall at Cape Town is 25″, of which 19″ falls in the six winter months, April to September. We can thus distinguish three rainfall regions: (1) A summer rain region in the south-east; (2) a winter rain region in the south-west; and (3) a dry interior region which extends to the west coast. The sunshine in many parts of the Union is very high: Cape Town has about 2740 hours per annum, Johannesburg 3175 hours, and Kimberley 3400 hours.

From our knowledge of the climate we can easily understand the chief crops: in the south-east maize does better than wheat because of the summer rains, and there is therefore a considerable export of maize and maize products. Wheat thrives better in the south-west, where the summers are dry; and the Cape Province produced six-sevenths of the wheat of the whole Union in 1923–24. Mediterranean fruits also thrive in the south-west, while the sugar-cane and pineapples are grown in the summer-rain lowlands of Natal. Cotton is now being grown in some of the warmer parts of the Union, and the results so far seem to promise well.

The rearing of sheep, goats, and ostriches is a great industry in the Union, which had 32,000,000 sheep and 8,000,000 goats in 1924. Excellent merino wool, some of the finest mohair (from the goats), and ostrich feathers are among the important exports from South African farms; the wool produced in 1924 amounted to 148,000,000 lb. and the mohair to 8,100,000 lb. Cattle-rearing is important, especially in the Cape Province and the Orange Free State; the Union had nearly 10,000,000 cattle in 1924, and the export of hides is an important source of wealth to South Africa.

The Union of South Africa is, however, best known for its great mineral wealth. From the Transvaal came more than half the world's output of gold in 1925—about £41,000,000 value as against £81,000,000 from the whole world. Other important ores are those of copper and tin, and quite recently a rich find of platinum has been reported from the Transvaal. Diamonds are obtained from three provinces, the largest output being from the north-east of Cape Province, chiefly from the Kimberley district. The value of the diamonds produced in the whole Union since records have been taken is £228,000,000, and of this huge sum the Cape Province has accounted for £175,000,000; the total output of the whole Union has fallen off remarkably in recent years. Coal is mined in all the provinces, but the Transvaal and Natal produce far more than the others ; in 1924 the whole Union mined 12,500,000 tons.

The total area of the Union is 470,000 square miles, or roughly four times that of the British Isles; in 1921 this great country contained over 7¼ million people, of whom 1½ millions were whites. The coloured population included 4,700,000 native Bantus, 540,000 of other native races, and 170,000 Asiatics. Clearly there is plenty of room here for more settlers of the right type, just as in Canada, Australia, and New Zealand.

There are four territories which are now ruled by native chiefs or by Resident Commissioners acting under the direction of the High Commissioner for South Africa, and which are also connected with the Union for customs' purposes: these are Basutoland Territory, Swaziland, the Bechuanaland Protectorate, and the South-West Territory. These are inhabited by scattered tribes of natives and by a few Europeans. Out of a total population of a little over a million there are about 25,000 Europeans. Basutoland is roughly $1\frac{1}{2}$ times the size of Wales; Swaziland is about $\frac{5}{6}$ths of the size of Wales; the Bechuanaland Protectorate has an area of 275,000 square miles, or more than twice the area of the British Isles, but a good deal of it has a very low rainfall and cannot support a large population. The South-West Territory was formerly German: it has been put under the Union of South Africa by a mandate of the League of Nations. Its area is over 300,000 square miles, or $2\frac{1}{2}$ times that of the British Isles. There is a very low rainfall everywhere, and some parts are barren desert. The position of these territories is shown on the map, fig. 19.

The chief cities and towns of the Union of South Africa, with their populations (Census of 1921), are:—

Johannesburg (Transvaal)	288,131
*Cape Town (Cape)	207,404
Durban (Natal)	146,310
*Pretoria (Transvaal)	74,052
Port Elizabeth (Cape)	46,094

Kimberley (Cape)	39,702
*Bloemfontein (Orange Free State)	39,034
*Pietermaritzburg (Natal)	36,023
East London (Cape)	34,673

Those towns marked * are the capitals of their respective provinces.

The seat of the Government of the Union is at Pretoria, and the seat of the Legislature is Cape Town—that is, the Houses of Parliament meet there to make the laws.

QUESTIONS AND EXERCISES

CHAPTER XVII

1. Find the latitude and longitude of Cape Town, Pretoria, Johannesburg, Durban, Bloemfontein, Windhoek.
2. Compare the latitudes of Cape Town and Sydney (N.S.W.). In what respects are their seasons and times of day alike or different? One is on the west of a continent and the other on the east. How do their rainfalls differ?
3. Which Australian capital city is most nearly in the same latitude as Pretoria? How do the climates of the two places differ?
4. Cape Town has its greatest rainfall in winter and Durban its greatest in summer. What is likely to be the character of the rainfall at Port Elizabeth, roughly halfway between the two? Find from the records if your conclusion is correct.
5. Compare the latitudes of Gibraltar and Cape Town. Compare their climates. Calculate the length of the curved meridian line from Gibraltar to the latitude of Cape Town. (You may take the length of a degree of latitude as 69 miles.)
6. Draw a map of the Orange River and its chief tributaries. Why has it few reliable tributaries in the lower part of its course? Why is it of little use for navigation and of uncertain use for irrigation?

7. Find the length of the railway journey from Cape Town to Johannesburg as accurately as you can from a good map. Find the distance between the two "as the crow flies."
8. The heights of the following towns above sea-level are: Kimberley, 4040 feet; Pretoria, 4470 feet; Johannesburg, 5700 feet. How much cooler, on the average, will each of these towns be than if it were situated at sea-level?
9. Draw a map of British South Africa, showing the four provinces of the Union and the four territories attached to the Union. Insert the chief towns and the railways, copying from a good up-to-date map.
10. An observer in the far north of the Transvaal can see the sun in a position which an observer in Cape Town can never see. Explain. Can any observer in (*a*) South Australia, (*b*) Western Australia, see the same thing as the observer in the north of the Transvaal?

CHAPTER XVIII

THE SOUTHERN TROPICAL DOMINIONS IN AFRICA

THE Transvaal is the most northerly province of the Union of South Africa; its northern boundary is the Limpopo River. If we cross that river we are in **Southern Rhodesia**. This is a self-governing State, with an area greater than that of the British Isles, or about half the size of New South Wales. The population is about three-quarters of a million, with about 30,000 Europeans.

Southern Rhodesia is a plateau land, and its capital, Salisbury, is nearly 5000 feet above sea-level. There is an average rainfall of 33″ a year at this town, almost all of which comes in the summer months; only 1½″ of this rainfall is recorded in the six winter months, April to September. The climate on the plateau is one of the most delightful in the world, and the amount of bright sunshine is extraordinary. In the lowlands, in the river valleys, it is hot and oppressive, and malaria is common. The terrible tsetse fly, the carrier of sleeping sickness, occurs in some of these hot, wet lowlands. One of the great problems of the State, as in many others in Africa, is to overcome the tsetse fly and the mosquito, which carry the deadly diseases of those hot regions.

Southern Rhodesia is well adapted for agriculture, and many European farmers are already doing well there.

The summer rain favours the growth of maize, and other successful crops are tobacco, ground-nuts, oranges, and lemons; wheat can be grown as a winter crop (that is, in the dry season) with the help of irrigation, and cotton promises very well indeed. This plateau country is well suited to cattle- and sheep-rearing, and there were nearly two million cattle and over 300,000 sheep in the State in 1923.

The country, like most of South Africa, is rich in minerals: these include coal, asbestos, copper-ore, chrome-ore, and gold. The State claims to lead the world in chrome-ore, and to be second to Quebec in the output of asbestos.

Northern Rhodesia.—The great Zambezi River forms the boundary between Southern Rhodesia and Northern Rhodesia. On this river are the wonderful Victoria Falls, which are often claimed to be as fine as, or finer than, those at Niagara; the falls are 2000 yards across, and the water plunges 150 yards into a narrow rift, where it flows away in a zigzag course. There is now a railway which crosses the river a little way below the falls, and near them stands the town of Livingstone, named after the great missionary-explorer, who was the first white man to see the falls.

Northern Rhodesia is similar in build to Southern Rhodesia—a plateau with deep-cut river valleys. It is, of course, nearer the Equator, and the climate is therefore hotter and rather less suitable for Europeans. Much of the country is savana land of the plateau type—a high plateau of grassland, with thin, scattered forest. Sir H. H. Johnston, who explored so much of this region and who knows it so well, writes of the heat in the lowlands as being "more unbearable" in the rainy season. The plateau is much healthier, but malaria occurs even there. A great point in its favour, however, is the abundant sunshine. The chief agricultural products are maize, cotton, wheat, fruits, and tobacco. Cotton is said to promise very well in the north-east of the province. The minerals which are worked include coal, lead, zinc, copper, and gold.

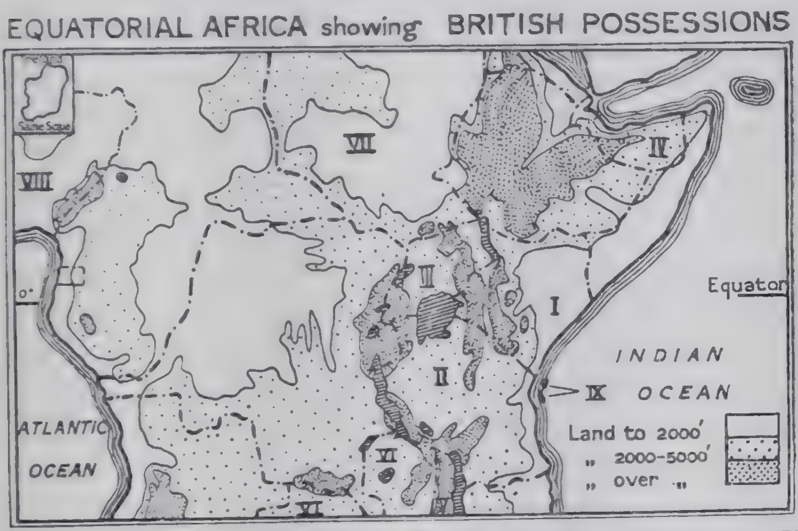

EQUATORIAL AFRICA showing BRITISH POSSESSIONS

FIG. 20.—I. Kenya Colony. II. Tanganyika Territory. III. Uganda Protectorate. IV. British Somaliland. V. Nyasaland Protectorate. VI. Northern Rhodesia. VII. Anglo-Egyptian Sudan. VIII. Nigeria. IX. Zanzibar and Pemba.

Northern Rhodesia has an area of nearly 300,000 square miles, or almost equal to that of New South Wales. The native population is thought to be about a million, and there were nearly 4000 Europeans in 1924.

Nyasaland.—To the east of Northern Rhodesia is the Nyasaland Protectorate—a long strip of mountainous country which includes the western part of Lake Nyasa and most of the basin of the Shirè River—a tributary of the Zambezi. The climate is like that of Northern Rhodesia, heavy summer rains from October to April, followed by four or five months in which very little rain falls. At Zomba, which is 3000 feet above sea-level, out of an annual rainfall of 54″, only 2″ are recorded in the five winter months, May to September. The lowlands, again, are hotbeds of malaria: the plateau above about 3000 feet is quite different, and here white men can get along very well.

Coffee, tea, maize, tobacco, and cotton are the chief successful crops. Coffee was a leading export in 1923, and Nyasaland cotton is now of good quality.

Tanganyika Territory.—This is a part of tropical East Africa lying slightly south of the Equator, and was formerly part of German East Africa. It has been handed over to the British under a mandate of the League of Nations. It lies mainly between the east coast and the three great lakes, Victoria, Tanganyika, and Nyasa. It is a plateau land, similar in build to Nyasaland, with a narrow coastal plain. On the plateau stands Mount Kilimanjaro, over 19,000 feet high, which is, so far as we know, the highest mountain in Africa. The total area of the territory is about 365,000 square miles—three times the size of the British Isles—and the population is a little over four millions.

In this territory the student can study the monsoonal change of the trade winds perfectly. When the sun is north of the Equator the winds blow from south-east or south-west; when the sun is south of the Equator the trade winds blow from the north-east. Dar-es-Salaam, the capital, situated on the coast, is hot all the year, the difference between the coolest month (July) and the hottest month (January) being 8°. The forests are of the equatorial type, and produce ebony, wild rubber, and bamboo. The cultivated plants are the same as in Kenya Colony (see next chapter).

Note.—For questions see end of Chapter XIX.

CHAPTER XIX

THE NORTH-EASTERN TROPICAL DOMINIONS IN AFRICA

We come now to the north-eastern group of British Dominions in Tropical Africa. **Kenya Colony** and **Protectorate** is almost bisected by the Equator, and lies between 5° S. and 5° N. It is a plateau country, with a rather wider coastal plain than some of the other provinces. Almost in the middle of the colony is Mount Kenya, 17,000 feet high: this snow-capped mountain lies right on the Equator, and bears several small glaciers. The early explorers were much surprised to find snow in such a hot land as Equatorial Africa. West of this mountain, running through the State from north to south and across Tanganyika Territory is the wonderful Rift Valley of East Africa: the relationship of this Rift Valley to the rest of the region may best be seen by studying a section across the country, such as could be constructed by following the railway from Mombasa, on the coast, to Lake Victoria.

The climate is again pleasant on the plateau, but

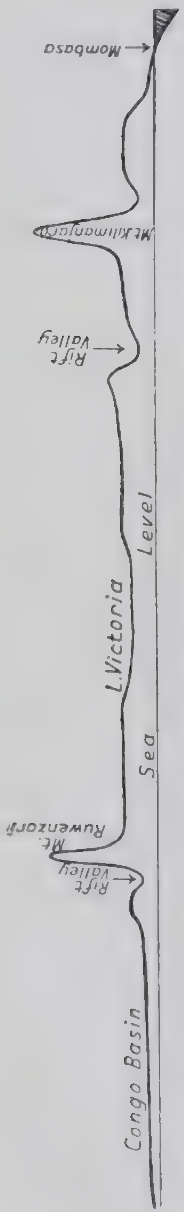


FIG. 21.—Diagrammatic section across Equatorial Africa.

(*N.B.*—The vertical scale is much exaggerated, being about thirty times the horizontal scale.)

malarial on the coastal plain and in the other lowlands. Mombasa has a range of temperature of only 6½° between the hottest and coolest months. Nairobi, away up on the plateau, has the same range, but the average temperatures are about 17° lower for most months of the year. The average temperatures for Nairobi are little higher in any season than are those of a London summer.

The agricultural productions of Kenya fall into two groups. In the wetter parts of the lowlands, rice, cassava, sugar-cane, coco-nuts, and ground-nuts are grown, and cotton may also be cultivated in the somewhat drier parts by means of irrigation. On the plateau, maize, wheat, coffee, and sisal are the chief productions; the maize is of excellent quality, and has been claimed to equal the best grown anywhere in the world.

The Uganda Protectorate.—This plateau land lies from 2° S. to 4° N. of the Equator, with nine-tenths of it in the Northern Hemisphere. It is partly surrounded by the great lakes Victoria, Edward, Albert, and Rudolph, the last named of which lies in the great Rift Valley. On the borders of Uganda are some of the highest mountains in Africa, Mount Elgon on the east being over 14,000 feet high, and the Ruwenzori Range on the west rising to over 18,000 feet, whilst most of the Protectorate is over 3000 feet above sea-level. The great river Nile has its origin in the south of this province, for it comes from the water which overflows from the great lakes. Here are the Ripon Falls and the Murchison Falls, which will one day be of great value in the production of electricity from water-power. The Protectorate has an area nearly equal to that of the British Isles, with a population of a little over three millions.

The climate is that of an equatorial plateau. Near the great lakes there is a heavy rainfall, which is spread throughout the year. Away from the lakes the rainfall rapidly diminishes, but in most of Uganda there seems to be an average fall of at least 40″. The difference of temperature between the seasons is small: at Entebbe, on the shores of Lake Victoria, there is a range of 3°, from July, the coolest month, to January, which is the hottest. The province has already made a name for its cotton growing; coffee, rubber, hides, and skins are other exports of importance. The railway across Kenya Colony from Kisumu, on Lake Victoria, is proving of very great importance in the development of this inland Protectorate.

Anglo-Egyptian Sudan.—This immense province extends from the borders of Uganda to the southern borders of Egypt, and includes about 2000 miles of the course of the Upper and Middle Nile. The great tributaries, Bahr-el-Ghazal, Sobat, Blue Nile, Atbara, and many other smaller rivers, join the mighty river in the

Sudan part of its course. The province extends to the Red Sea in the north-east, where it includes several hundred miles of the coast of that very hot region.

The climate of the Sudan rapidly becomes drier as we proceed northward from the borders of Uganda, until at Khartum, 14½° north of the Equator, the rainfall averages only 5″ per annum, while farther north even this scanty fall would be welcomed. Hence, agriculture in a great part of the Sudan depends upon irrigation. One of the most famous irrigation schemes in the world is that of Sennar-Makwar on the Blue Nile; here a huge dam has been constructed to conserve the water of this river, and thus to irrigate a big area of land, chiefly for the growing of high-grade cotton. Most careful arrangements have been made so that the native workers shall receive a fair share of the sale price of the cotton which is thus produced.

The province has an area of over one million square miles, but the population is only about six millions, as many parts suffer from the lack of rain. The greatest export is gum, and the Sudan is the chief producer of gum-arabic in the world; other exports, in order of value, are cotton, sheep and goats, millet, and sesame seeds and oil.

British Somaliland.—In the north-eastern corner of Africa is the British Protectorate of Somaliland. This province lies on the south of the Gulf of Aden, and has therefore a dry and hot climate. It is similar in build to many other African provinces, as it is a plateau of from 1000 to 6000 feet high, with a coastal plain of from 10 to 20 miles in width. The coastal plain, facing the Gulf of Aden, has very little rain indeed, the average at Berbera being about 2½″ per annum; the coast is also extremely hot, the average temperature of July being 97°. On the plateau it is cooler, and there is probably as much as 20″ of rain a year in some parts, but records are few and incomplete.

The Protectorate is a little bigger than England and Wales, and the people number about 300,000: this sparse population is almost entirely nomadic in the interior, but there are settled towns along the coast, Berbera being the chief. Hides and skins and gums are the chief exports.

The Protectorate of Zanzibar.—Lying some twenty miles off the coast of East Africa, in latitudes 5° to 7° S., are the two islands of Pemba and Zanzibar. These, with a number of smaller islands, are included in the British Protectorate of Zanzibar. The area of the two islands, Zanzibar and Pemba, is 1020 square miles, or about the same as Cheshire, or Derbyshire, in England. There is a population of about 113,000.

Cloves and coco-nuts are the chief products. Most of the world's supplies of cloves come from these islands, and cloves and clove-stems form the most important export. A large amount of copra is exported also.

QUESTIONS AND EXERCISES

CHAPTERS XVIII AND XIX

1. Why do we speak of the British Dominions dealt with in these two chapters as "Tropical"? What do we mean by the tropic lines, and what are their names?
2. Draw a map of the River Zambezi. Mark on it the positions of (*a*) the Victoria Falls, (*b*) the great Kuriba Gorge, (*c*) the confluence of the Shirè River.

3. Find the latitude and longitude of Bulawayo, Salisbury, Broken Hill, Blantyre, Dar-es-Salaam, Mombasa, Nairobi, Entebbe, Gondokoro, Khartum, Berbera.
4. When is the sun overhead at Entebbe? Calculate, to within a day or two, when it is overhead at Khartum and at Salisbury.
5. Draw a map of the great lake system of Tropical East Africa, and show by what rivers, if any, their overflows are carried away.
6. Nairobi is 5450 feet above sea-level, and its average yearly temperature is 63°. Mombasa is almost at sea-level, and its average yearly temperature is 78½°. Where have you met with similar differences If you were asked which would be the more likely place for the growing of cocoa, what answer would you give and what reasons would you offer for your choice?
7. What would you expect to be the average annual temperature at the top of Mount Kenya? Do you know anything of the appearance of the mountain which corresponds with your estimate of the temperature?
8. Summarise the plant productions of British Tropical East Africa under the following headings: (*a*) the wet lowlands, (*b*) the plateau uplands, (*c*) the uplands with a very low rainfall.
9. Why is it difficult to keep cattle or horses in many of these tropical lowlands? What steps are being taken to overcome the difficulty?
10. How do you explain the fact that most of the people in the interior of Somaliland are nomadic? What beast of burden are they likely to use?

CHAPTER XX

BRITISH WEST AFRICA

THIS interesting group of British dominions contains some of the oldest colonies in the Empire: Gambia dates from the seventeenth and Sierra Leone from the eighteenth century. Nigeria, the largest of them, is, however, quite young, dating only from the latter part of the nineteenth century. These dominions are in that part of the great continent where the coast bends round and begins to run from west to east: here the land faces southwards towards the big lobe of the equatorial Atlantic Ocean. This east-west coast is only about 5° north of the Equator, and northwards the land rises to a plateau, behind which there lies the greatest desert in the world.

This relationship of land and sea, and the position so near the Equator, explain the climate of British West Africa. It is always hot, for no part lies more than about 13° from the Equator, but the rains are mostly of the monsoon type because of the relationship of land and sea. The sun is overhead on the Tropic of Cancer at noon on about 21st June; in the later months of the northern summer the land mass becomes very hot, especially the great Sahara Desert. The air over this land mass expands and becomes lighter: a low-pressure region is thus set up, and air is drawn in from across the Equator;

in other words, the south-east trade winds are drawn from the sea towards the Sahara and reach the land as south-west winds.

These winds have obviously come from over a warm ocean, and the air contains a great deal of water vapour: when this air reaches the land and must rise to the plateau, it expands and is cooled, and as is usual in such cases there is a heavy rainfall. This is a seasonal rainfall, and so we call it "monsoon rain," for the word "monsoon" means a wind which changes with the seasons. The average rainfall of Freetown, in Sierra Leone, is 174″ a year, and of this 160″ fall in the six summer months, May to October. Nearer the Equator the rain falls more evenly throughout the year; but even at Akassa, in Southern Nigeria, only $4\frac{1}{4}$° from the Equator, about 100″ fall during the same six months out of a yearly total of 144″. In the other half of the year the sun is south of the Equator. The trade

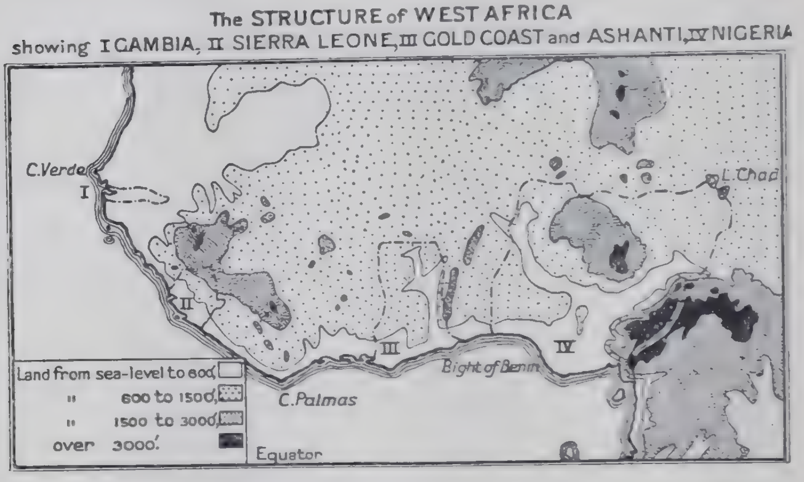

The STRUCTURE of WEST AFRICA
showing I GAMBIA, II SIERRA LEONE, III GOLD COAST and ASHANTI, IV NIGERIA

FIG. 22.

winds blow from the north-east, and, generally speaking, this is a dry season.

The general build of the region must now be taken into account. First of all there is a narrow coastal plain; behind this the land rises to a low plateau, and still farther inland we reach heights of 4000 feet and over. By taking into account both climate and elevation we can understand the physical divisions of the region: (*a*) the low, swampy, and unhealthy coastlands; (*b*) the lighter tropical forest, where there is a distinct dry season; (*c*) the savana lands, with seven or eight months of dry weather; (*d*) the semi-desert land beyond the northern limits of British territory; and (*e*) the Sahara Desert, which does not concern us directly here.

The low coast lands have often been described as amongst the most unhealthy in the world; in fact, they were often called "The White Man's Grave." We do not use such harsh terms nowadays, however. The climate is still very trying for Europeans, but much less so than formerly. Europeans have learned to adapt themselves, and near the towns and villages the deadly mosquitoes are not allowed to breed unchecked, as they were in the earlier days. One of the triumphs of British rule, and one of which the British may well be proud, is the progress made in fighting the terrible tropical diseases. The medical schools of the two great English ports, London and Liverpool, have paid special attention to these diseases and to the means of preventing them, and life is much safer than formerly, though white men still need to exercise great care.

The four British dominions are shown on the map, fig. 22, from which it will be seen that from west to east they are: Gambia, the smallest, Sierra Leone, the Gold Coast with Ashanti, and Nigeria, the largest. **Gambia** has an area of over 4000 square miles, that is nearly twice the size of Prince Edward Island, or half the size of Wales. Its population is about a quarter of a million. **Sierra Leone** has an area of 31,000 square miles, which is nearly that of Scotland, or is somewhat larger than New Brunswick; the population is about 1,400,000. The **Gold Coast,** with Ashanti and the Northern Territories, has an area of 80,000 square miles, being nearly as large as England and Scotland together, or a little less than the State of Victoria, and the population is over two millions. **Nigeria** is a big country, the area being about 335,000 square miles—greater than New South Wales, nearly as great as South Australia, or nearly three times the size of the British Isles, the population being about 18 millions, including about 4000 Europeans. The great River Niger flows through the last-named territory, and empties itself through an immense delta into the eastern part of that great lobe of the Atlantic Ocean called the Gulf of Guinea. In addition to these four ordinary British dominions, portions of the former German territories, Togoland and the Cameroons, are at present ruled by the British under a mandate of the League of Nations.

Plant life is wonderfully rich and varied in these lands, and the British have done much towards the development of native shrubs and trees and the introduction of others from abroad. The chief products of this group of British lands are derived from the quick-growing and luxuriant vegetation. We mention first palm kernels and palm oil, from the very common and widespread oil palm, as all these colonies export them in large quantities. Coco-nuts and copra are exported from the Gold Coast. Following these we may put ground-nuts, or peanuts, popularly known as "monkey-nuts." More than half the cocoa of the world now comes from this group of colonies, chiefly from the Gold Coast. This is a recent triumph, for there is apparently no mention whatever of cocoa derived from any of these British lands in books published thirty to forty years ago. Rubber is another plant product of importance.

Cotton is grown in all these dominions, more especially in Nigeria, where the British Cotton Growing Association has paid particular attention to the selection of good seed and to methods of preparing the raw cotton for export to the English market. Mention should also be made of mahogany and other tropical timbers, which are already exported, and could be made use of in much larger quantities than hitherto by further development of shipping from that region. Products derived from animals are hides and skins and some ivory; the latter comes chiefly from Nigeria, but there is not nearly so much obtained as was once the case.

There is a good deal of mineral wealth including coal, gold, tin, manganese, and lead. The name Gold Coast reminds us of the gold which was obtained from the sands of that region in the very early days. The name "Guinea" was given to British coins which were first made, in 1663, of gold obtained from the shores of the Gulf of Guinea. The tin-ore of Nigeria is now an important export, and is sent in considerable quantities to South Wales to be smelted.

QUESTIONS AND EXERCISES

CHAPTER XX

1. Draw a map of West Africa from the Equator to 20° N., and show on it the River Gambia, the River Niger and its tributary the Benue, and the positions of the four British dominions dealt with in this chapter.
2. Find the latitude and longitude of each of the following places: Bathurst, Freetown, Accra, Lagos, and Kano. What is the real time of day at Bathurst and at Accra when it is noon at Greenwich?
3. Find the distance from Southampton to Bathurst from a good map: also the distances from Bathurst to Freetown, Accra, Lagos, and Akassa.
4. Why are the rivers of Sierra Leone and Gold Coast Colony not of very great use for navigation? What important use may they be put to in the future?
5. Compare the climatic conditions of Sierra Leone with those of British Somaliland in about the same latitude, and explain the differences and points of similarity as fully as you can.
6. Write an account of the cultivation of the ground-nut (peanut) plant, and the uses to which the nuts or seeds are put.
7. From which parts of Nigeria are the hides of cattle and the skins of sheep and goats most likely to be obtained in large quantities? Give reasons for your answer.
8. How many times a year can a resident in Freetown see the sun overhead at noon? Find the actual dates as nearly as you can.

R. B. A. N. M'S EDUCATIONAL CHARITIES.
No......................
Date......................
BANGALORE.

CHAPTER XXI

THE EMPIRE IN THE INDIAN OCEAN

THERE are a number of small British islands scattered in groups or lines in the great ocean which lies almost "four square" between Africa, Asia, Australia, and the Southern Ocean. We will deal briefly with five of these groups.

The Andaman and Nicobar Islands.—In the north of the Indian Ocean, not far from Asia, and lying in the south-east of the Bay of Bengal, are two lines of small islands—the Andaman Islands and the Nicobar Islands. These are no doubt the tops of long lines of fold-mountains of Alpine type, the main part having sunk below sea-level. Some parts of the Andaman line still stand more than 2000 feet above sea-level. These islands produce good timber, coco-nuts, manila hemp, sisal, and rubber. They are ruled under a Commissioner appointed by the Government of India.

The Maldive and Laccadive Islands.—On the other side of the Indian Peninsula, to the south of the Arabian Sea, are two groups or chains of coral islands—the Maldive Islands and the Laccadive Islands—each made up of a great number of small islands. The root "div" means island, whilst "mala" means a thousand, and "laka" a hundred thousand, the fanciful names thus reminding us, in a picturesque manner, of the great numbers of these islands. The chief product is the coco-nut, the Laccadive Islands especially being richly clothed with coco-nut palms. Like the Andaman and Nicobar Islands, these groups have a tropical climate, with heavy rains in the wet monsoon season. The Maldive Islands are ruled by a Sultan, who pays tribute to the Government of Ceylon, and the Laccadive Islands are under the Madras Presidency.

The Cocos or Keeling Islands and Christmas Island.—The Cocos or Keeling group consists of about twenty small coral islands lying about 800 miles south-west of Sumatra; they are included in the Government of Singapore, as is also Christmas Island,[1] which lies about 700 miles east of the Cocos group. The Cocos Islands export coco-nuts, copra, and coco-nut oil. Christmas Island has a wonderfully rich deposit of phosphate of lime—a very valuable manure—of which 125,000 tons were exported in 1924.

Mauritius and its Dependencies.—Mauritius is the largest British island in the Indian Ocean, having an area of 720 square miles, or 3 times the size of the Isle of Man, or about 4⅓ times the size of Barbados, and the population is nearly 400,000. This island is part of an old continent which has mainly sunk to the level of the ocean floor, and of which the Deccan, the great island of Madagascar, and West Australia are parts left above sea-level. Mauritius contains several volcanic mountains, but they are not active at the present time.

There are two very distinct climatic seasons—a wet summer from about November to March and a drier and cooler season from April to October. The rich volcanic soil and the heavy summer rainfall are well suited to the growth of the sugar-cane, and sugar is easily the greatest export of the island. Copra, coco-nut oil, and a variety of hemp, called Mauritius hemp, are other exports, but their total comes far behind that of sugar. This very interesting island is noted as having been the home of the big wingless bird, the dodo, which became extinct at least 200 years ago. The inhabitants are largely of Indian descent, but the language and laws are French, relics of the former French occupation. The capital is Port Louis, a town of 50,000 people.

---

[1] Not the Christmas Island of the Pacific Ocean (see Chapter XI, p. 70).

There are other scattered islands in the Indian Ocean which are included in the Government of Mauritius. **Rodriguez** is a volcanic island 350 miles east of Mauritius; the volcanoes are no longer active. The greatest length of the island is 18 miles, and the greatest width 7 miles, the population being only about 7000. Other dependencies of Mauritius are the Cargados Islands, and the Chagos group, of which Diego Garcia is the largest. The last named is on the direct route from Aden to Australia, and fortunately possesses a good harbour. The chief products of these smaller islands are copra, coco-nut oil, and guano. These dependencies vary in distance from Mauritius from 200 to 1200 miles, and they are visited from time to time by British magistrates, who inquire into the way in which the labourers are treated, and who deal with any disputes which may have arisen.

The Seychelles.—This group, with other islands under the same Government, includes about ninety islands, lying between 5° and 10° south of the Equator. The largest island is Mahè, in the Seychelles, and it is about one-third of the size of the Isle of Wight. The best known of the smaller dependencies is the group of the Amirantes. The total area is about 160 square miles, or, roughly, the size of the Isle of Wight, or of Barbados, and the population is about 25,000. The islands have a tropical climate, and the products are such as would be expected of tropical islands in the middle of an ocean. Coco-nuts, copra, coco-nut oil, vanilla, cinnamon, and some mangrove bark are the chief plant exports, and tortoise-shell and guano are other exports of importance. A curious double coco-nut, known as Coco de Mer, grows in two of the islands and nowhere else in the world.

QUESTIONS AND EXERCISES

CHAPTER XXI

1. Find the latitude and longitude of (*a*) Christmas Island (Indian Ocean), (*b*) Cocos Islands, (*c*) Mauritius.
2. What time is it (approximately) at each of the places mentioned in Question 1, when it is noon at Greenwich?
3. Calculate as nearly as you can when the sun will be overhead at (*a*) Mahè in the Seychelles, (*b*) Cocos or Keeling Islands, (*c*) Port Louis in Mauritius. Explain why there are two answers in each case.
4. Suppose ships are passing between the following pairs of places, which of the islands mentioned in Chapter XXI would it be convenient for them to call at in each case?—(*a*) Aden (Arabia) and Freemantle (West Australia); (*b*) Colombo (Ceylon) and Freemantle; (*c*) Singapore (Straits Settlements) and Freemantle; (*d*) Durban (Natal) and Colombo; (*e*) Aden and Singapore; (*f*) Zanzibar (East Africa) and Colombo.
5. Write down the names of the islands mentioned in Chapter XXI in two larger groups whose rainy seasons are in different parts of the year.

6. Which of the group of islands mentioned in Chapter XXI is farthest from a continent?
7. Compare the positions of (*a*) Mauritius and the Fiji Islands, (*b*) Mauritius and the Cayman Islands (Caribbean Sea), (*c*) Mauritius and the Kuria Muria Islands (Arabia), in respect of time of seasons and of time of day.

CHAPTER XXII

THE PRODUCTS OF THE EMPIRE: FOODS

In this and the next three chapters we call attention to some of the ways in which the different members of the Empire depend upon and help one another. The first need of any people is food, and we therefore begin with some of the more important food products.

Wheat.—This is the great bread-stuff of white peoples, and it is becoming more and more one of the world's most important foods. It is mainly a crop of the temperate lands, where it is either sown in autumn and harvested in the following summer, or is sown after the frosts have broken up and reaped in late summer. The Empire has many regions where the right conditions either for autumn-sown or for spring-sown wheat are found. Eastern England and south-east Scotland, southern Ontario, middle Canada, British Columbia, south-west Africa, southern Australia, eastern Tasmania, and eastern New Zealand are all temperate regions suitable for wheat-growing. It can also be grown in some of our tropical lands in the cooler and drier season, especially if irrigation is possible, the crop being sown and grown, and the grain ripened and harvested, in about four months in all. North-west India produces a great deal of wheat under these conditions, and such regions as Southern Rhodesia and the

Sudan can also grow wheat quite well in their cool seasons.

Other cereal crops of great importance are oats, maize, and rice, and here, again, different parts of the Empire can satisfy all our needs.

Maize.—The wetter eastern parts of our warm temperate lands have proved to be well adapted to the growing of maize: the summer rains, the abundant sunshine, and the high temperature produce excellent crops of this cereal. North Island (N.Z.), Queensland, New South Wales, Natal, eastern Cape Colony, southern Rhodesia, and Kenya may be named as examples where good maize crops can be raised.

Rice.—This is a very important food crop in many of our hot lands, where there is a good rainfall, or where the water can be supplied by irrigation: India (including Burma), Siam, British Malaya, British West Africa, Uganda, and British Guiana may be mentioned, but these do not exhaust the list.

The starchy foods, such as sago and tapioca, can be produced in different parts of the Empire in such quantity as to satisfy all its needs. The cooler lands, such as the British Isles, Newfoundland, Canada, Tasmania, Southern Australia, New Zealand, the Falkland Islands, and the Cape of Good Hope, are dependent upon the warmer lands of the world for these, as for many other foods, and it is well to remember that the Empire can produce all that its various members require.

Sugar is needed in enormous quantities in modern times. It is obtained from two chief sources—the sugar-cane and sugar-beet. The former is grown in the hot lands, such as India, the Fiji Islands, Mauritius, British

Guiana, the British West Indies, and some of the warmer African lands. The sugar-beet is not grown very largely in the British Empire: trials have been made, and such temperate lands as the British Isles, Canada, Victoria, Tasmania, and New Zealand have the right conditions, and could grow enormous quantities if the matter was taken up in real earnest.

The **fruits** of the Empire are, of course, many and varied, because the climate varies so much in the different parts. All the fruits that man desires or needs can be grown within the Empire. We may mention the apples of the British Isles, eastern Canada, the Lake Peninsula of Ontario, British Columbia, South Africa, Victoria, Tasmania, and New Zealand: these regions alone could satisfy all the demands of the peoples of the Empire. South Africa, Australia, and New Zealand produce peaches and apricots; Australia and Africa grow fine oranges and lemons; and different kinds of grapes may be had from South Africa and Australia, including dried grapes in the form of currants and raisins.

Many people of the Empire were surprised to see the fine bottled berries of many kinds shown by Newfoundland at the Empire Exhibition in 1924–25: that old colony has rich crops of bilberries, cranberries, raspberries, and other fruits. The fruits of warmer lands include the bananas of Jamaica; the pineapples of the Bahamas, Natal, and Queensland; and the limes of some of the British West Indies, without pretending to make our list anything like complete. By using modern methods of bottling, and preserving, and shipping fruit, the different parts of the Empire can satisfy each other's needs very readily.

Tea, Coffee, Cocoa.—It would seem to be a strange world if we were cut off from our supplies of tea, coffee, and cocoa; yet our cool temperate lands—the British Isles, Canada, Newfoundland, the Falkland Islands, New Zealand, Tasmania, and even parts of Australia and South Africa—are unable to grow them. The world is dependent upon the warmer regions for these everyday beverages; but here, again, the British Empire could easily supply all its own needs, if necessary. Tea from India and Ceylon; coffee from Kenya, Uganda, and Jamaica; and cocoa from the Gold Coast and from some of the West Indies are examples of what the Empire can do. The loss of the coffee of Ceylon should teach us all a lesson: we must guard carefully against the spread of plant diseases, and must also learn to select the plants suited to the climate and soil. The Empire will grow these important crops successfully only so long as we continue to study the proper conditions for them.

Animal Foods.—The British Empire is a big producer of animals for foods. Canada, Australia, South Africa, New Zealand, and Rhodesia are all noted for their cattle, and from them other parts of the Empire can obtain live animals, frozen or chilled beef, tinned beef, beef extract, preserved milk, butter, and cheese. Those who saw the Empire Exhibition at Wembley will not readily forget the exhibits of these animal foods from Canada, Australia, New Zealand, and South Africa. Canada claims to have produced the two world-champion milk cows—one in Quebec, the other in British Columbia; from the milk of one of these nearly 1700 lb. of butter were made in one year.

From beef we naturally pass to lamb and mutton, and here New Zealand and Australia lead the world's supply. Frozen lamb is not only one of New Zealand's chief exports, but is one for which it is justly famous in the world's markets. "Canterbury lamb" has a great name for its excellent quality. Western Canada and the Cape of Good Hope are likely to increase their output of mutton and lamb in the future.

The Empire also produces bacon and hams in large quantities, Canada and the British Isles being the most famous: each of these regions had about the same number of pigs (about 4½ millions) in 1923; but there are five times as many people to feed in the British Isles as in Canada, and so there is a big export of bacon, hams, and lard from Canada to the Mother Country. Australia, New Zealand, and South Africa all rear pigs in considerable numbers, but the export of their produce is not yet very important.

We must not overlook the **fisheries** of the British Empire. Its lands are scattered all over the world, and touch not only all the oceans but all the kinds of seas, warm and cold, deep and shallow. It is from the shallow and colder seas that the best supplies of food fishes have been obtained, as a rule, but almost every part of the Empire has its own particular kinds. The most famous regions are the shallow seas round the British Isles, the seas off Newfoundland, the seas touching British Columbia —and one must not forget the vast system of rivers and fresh-water lakes of Canada. Newfoundland earns its living more by fishing and curing fish than by anything else; and it sends dried cod, fresh fish, salted fish, and tinned lobsters into many a part of the British Empire and into other lands. British Columbia has one of the greatest salmon fisheries in the world in its splendid system of rivers. From 4000 to 5000 men find employment in this industry, and it is no uncommon thing to see Canadian chilled salmon on the tables of the working-class homes in the British Isles.

The proud position of Canada and Newfoundland in the fishery world must not blind us to the fact that other parts of the Empire have food fishes in plenty. An Englishman who has lived in Barbados says that if you wish to taste really delicious fish you should have a meal of flying-fish, freshly caught from those warmer seas; and it is estimated that even in that small island about a thousand men are engaged for much of their time in fishing. A recent writer on Australia says that the time may be approaching "when the world's 'centre of gravity' in commercial fisheries shall be moved to Australia." There is no doubt whatever that many another part of the Empire can point with pride to the value and excellence of its food fishes. This is as it should be in an Empire whose people are "members one of another." We must not be jealous of each other, except in so far as we would all like to be first in the steady development of the resources of that Empire.

QUESTIONS AND EXERCISES

CHAPTER XXII

1. An English boy had the following for his breakfast: (*a*) oatmeal porridge and milk, (*b*) bacon and egg, (*c*) bread and butter, with marmalade, (*d*) cocoa, with milk and sugar. Show how every part and every ingredient could be contributed by some part of the Empire.

2. Think of these four islands in the Empire: Newfoundland, Jamaica, Ceylon, Tasmania. What foods can each supply to a common stock of the necessaries of life?
3. What great inventions had to be made before New Zealand lamb could be supplied to the markets of the British Isles?
4. Find the "Lake Peninsula" of Ontario on your maps. This is a very famous fruit region. What fruits do you think are grown there?
5. The Mildura fruit farms have been mentioned in this book. Find Mildura on a map of Australia. From what river does it draw its water for irrigation? What fruits are grown there, and from which port are they exported?
6. Draw up, as far as you are able, a table showing the foods which the British Isles import from the following five Dominions: (*a*) the Dominion of Canada, (*b*) the Union of South Africa, (*c*) the Commonwealth of Australia, (*d*) the Dominion of New Zealand, (*e*) the Indian Empire.
7. What foods are produced in the British West Indies, British Guiana, and the Bermudas?
8. Make a list of the foods produced by the islands in the Indian Ocean and by those in the Pacific Ocean.
9. Make six columns with the following headings: (1) Wheat, (2) Sugar, (3) Cocoa, (4) Apples, (5) Oranges, (6) Beef. Write under each heading the names of the parts of the Empire which export them.

CHAPTER XXIII

THE PRODUCTS OF THE EMPIRE: CLOTHING MATERIALS

A SECOND great need of a people is **clothing.** In this chapter let us look at the materials for clothing which the British Empire can supply to its various peoples. Most of our clothing is made from textiles which have been woven on a loom and are therefore called textile fabrics. These woven goods, or textile fabrics, are made from fibres which are obtained from plants or animals. It is the supply of these textile fibres which concerns us mainly here: we shall see how far the Empire can supply us with sufficient of them for the weavers to make the fabrics, which in their turn will be made into clothing.

The textile fibres, or raw materials, with which the textile trades must begin are: (1) cotton; (2) wool, including mohair and alpaca; (3) flax and ramie; (4) silk; (5) rayon, or artificial silk.

Cotton.—This is given first place because there is more cotton used than any other fibre: it is the most important of all raw materials for textile fabrics. It is used everywhere, and it is necessary for all civilised peoples. Cotton is the raw material of the greatest manufacture of the Home Country—the cotton industry of Lancashire and other British districts,—probably the greatest local industry in the world. It is quite clear, therefore, that the supply of raw cotton is a most important matter for the British people. Unfortunately, we have had so far to depend upon other countries, but great efforts are being made to grow more and more cotton within the Empire itself. The British Cotton Growing Association has now been working for a quarter of a century, and has done some splendid work in opening up new regions for the growth of good cotton within the Empire. It seems quite possible that, in the future, the Empire may produce almost all the cotton that it needs.

India is the Empire's chief producer, but most of the supply is of short fibre, or short staple, and is not well prepared for the spinner. It is not suitable for the Lancashire mills on that account, and very little Indian cotton finds its way into that great industrial region. Improvements are now taking place, however, both in the selection of good seed and in the proper grading and packing of the raw cotton. Great irrigation works are extending the area of cotton growing, and it seems quite likely that in time India will produce larger supplies and a better quality of cotton, to the advantage of the farmers of India, the cotton spinners and weavers of the Mother Country, and the wearers of cotton clothing all over the Empire.

Almost all the British dominions in Africa can grow good cotton, and great strides have been made in Anglo-Egyptian Sudan, Uganda, Northern Nigeria, Southern Nigeria, and Nyasaland within the last twenty years. A great scheme of irrigation has been recently carried out in the Sudan for using the spare water of the Blue Nile in the flood season. An immense dam now stores up water, which is distributed in the dry season over the rich soil of part of the Gezira, which is the flat, fertile land between the Blue Nile and the White Nile.

A particularly good kind of cotton is grown in the West Indies, chiefly in the Leeward Islands, St Vincent, and Barbados: very big prices are usually paid at Liverpool for this cotton of long and fine staple, called sea-island cotton. Other Empire dominions which have shown their ability to grow cotton are Cyprus, Ceylon, the Fiji Islands, and Queensland. The latter state has made great strides during the last few years, and there is promise of a greatly increased supply in the future.

Wool.—The world needs at least 2600 million pounds of wool every year to satisfy its demands for the manufacture of woollen clothing and of fabrics in which wool and cotton are woven together. Of this immense quantity of raw wool it is estimated that the Empire produces very nearly 1300 million pounds, or half the whole. The best wool is that called "merino," and of this the Empire produces nearly two-thirds of the whole. It will be seen that we take a very much higher place in the production of wool than in that of cotton, and especially of the most valuable wool. The Empire producers, in order of amount, in 1924 were: Australia, New Zealand, British South Africa, the British Isles, British India, Canada, and the Falkland Islands. The position of wool in Australia and New Zealand has been mentioned in the chapters dealing with those parts of the Empire.

There seems to be no reason why the production of high-grade wool within the Empire should not be greatly increased even yet; and Canada and Southern Rhodesia seem to be very likely dominions where that increased production may be expected.

Flax and Ramie.—Linen was one of the prized fabrics of ancient times. "Clothed in purple and fine linen" was the description of a wealthy, well-dressed person. Linen is still used for clothing, but much less so than formerly; but it is still widely used in various fabrics in our homes. The raw material of linen is the fibre obtained from the flax plant—a plant whose pretty blue flowers are no doubt well known to many readers of this book. This plant can be grown successfully in hot and temperate climates, and hence has a wider range than cotton. Flax is grown for the linen fibre which is obtained from its long stalk or stem, and also for the seeds, from which linseed oil is obtained. It is not wise to attempt to grow flax for both purposes at the same time —good fibre and good seed—for those who have tried this have usually found that both the fibre and the seed are of poor quality.

Except in the British Isles, very little flax is grown for the fibre in the Empire; that grown in Ireland and the little grown in Great Britain is of excellent quality for fibre: the seed is a somewhat inferior by-product. Canada has grown flax for the seed chiefly, the western part of Ontario having been the most successful. Other British dominions which have been experimenting, or are now doing so, are the Transvaal, the Orange Free State, Kenya Colony, Cyprus, Victoria, and New South Wales.

Ramie is a strong, fine, silky kind of fibre obtained from the stem of a plant of the nettle family. It is a beautiful textile fibre, but is not easy to work, and the British Empire has not done much with it as yet. It is used more for making lace curtains, handkerchiefs, tablecloths, and carpets; but it has been used for clothing fabrics, mainly by combining it with worsted in the weaving process. It can be grown quite successfully in India, British Malaya, and the tropical lands of Africa, but its production on a really great scale is a matter for the future.

Silk.—This beautiful fibre, which is obtained from the cocoons of certain caterpillars or "silk-worms," is not very largely produced in the Empire: we depend upon China and Japan for most of our silk fibre. A good deal was at one time grown in Bengal (India), but the industry has been allowed to decline. The only part of the Empire which produces good silk in fairly large quantities is Kashmir, where the industry is carefully supervised by the State. It does well on the slopes of the Himalayas, at a height of about 6000 feet.

It has been shown that other parts of the Empire can produce it successfully, especially such upland regions as those of Uganda and Rhodesia; but, as in the case of ramie, there is much pioneer work to be done before the Empire can become self-supporting in silk.

Rayon or Artificial Silk.—This is a fibre which is *made*, not *grown*, and is one of the most wonderful inventions of this age of discovery. It was not discovered by accident, but by men who set out to find a means of imitating the "silk worm" as nearly as they could. It is made from cellulose by one of four chief processes. The cellulose,[1] after being treated with suitable chemicals and going through some complex processes, is pressed or drawn through a fine nozzle into continuous threads, which are at once wound on a bobbin, or into the form which the cotton-spinner calls a "cheese."

Wonderful results have already been obtained, and this new fibre is now being combined with cotton, worsted, ramie, flax, and silk to weave many beautiful and durable fabrics. The British Empire is cultivating this new process with great keenness. We have plenty of the right kind of raw material, such as wood-pulp made from spruce logs, and we have the knowledge of the right kind of chemicals and the materials from which they are produced. The great industrial regions of the Mother Country, especially Lancashire and the West Riding of Yorkshire, have already made great strides in the development of this new and beautiful fibre; but, of course, much of the raw material will have to be imported, maybe from distant parts of the Empire. Fortunately, Newfoundland, which is not far from the British Isles, has immense quantities of spruce available for export.

---

[1] See glossary.

Other clothing materials include light **leather**, made from the skins of sheep and goats, and heavy **leather**, made from the hides of cattle, horses, buffaloes, and yaks; these can only be briefly mentioned here. It is, perhaps, enough to say that the Empire can satisfy all its demands, but one part of the Empire must help another to a very great extent.

QUESTIONS AND EXERCISES

CHAPTER XXIII

1. What is the connection between the words "weaving" and "textile"? Find from a dictionary the derivation of the latter word.
2. Which parts of the Empire cannot hope to grow cotton (*a*) because the climate is too cold, (*b*) because the climate is too wet almost all the year round?

3. The following are the quantities of raw cotton produced in Queensland in the years mentioned. Make a diagram showing the rate of increase. (The figures are as given in the Australian Year Book, No. 17.)

1919 .	27,470 lb.	1922 .	3,956,635 lb.
1920 .	57,065 lb.	1923 .	11,784,510 lb.
1921 .	940,126 lb.	1924 .	14,000,000 lb.

4. "The world is becoming dependent on the Southern Hemisphere for its wool." Explain this as fully as you can, and show what share the British Empire has in that production.
5. The Mohair Goat is a native of Asia Minor. Where is this region? This goat now thrives very well in British South Africa. Explain why this result follows.
6. What do you know of the uses of linseed and linseed oil?
7. Ramie is used for making incandescent gas-mantles. Take the word "Ramie," and put the last letter of the alphabet at the end of the word; now spell it backwards. Do you recognise the name of any famous brand of gas-mantles?
8. Why is the manufacture of Rayon (artificial silk) often found in a region (*a*) where chemical manufactures are carried on, (*b*) where other textile manufactures are found?

CHAPTER XXIV

SOME OTHER PLANT PRODUCTS OF THE EMPIRE

Our modern life is exceedingly complex, and a thousand and one things are wanted by man from many sources and from many lands. Our Empire produces a wonderful variety of the things that man needs, in addition to those connected with food and clothing and those which will be mentioned in the next chapter. We cannot even name them all, but a few of the more important should be discussed.

Timber.—Many different kinds of timber for very varied uses are obtained from the British lands. The hot lands yield hard woods of great value, such as mahogany from British Honduras, the Gold Coast, and Nigeria; greenheart from British Guiana; and teak from India and Burma. The hard timbers from the warm temperate lands include the remarkable jarrah and kauri trees of Australia: these can be used for structures under water, such as piers and groynes, because their hard timbers will stand immersion in water without decaying. The cool temperate lands produce the deciduous timber trees, such as oak, elm, beech, and ash, and the softer coniferous timbers, such as white pine, spruce, and Scotch pine. Canada and Newfoundland have immense areas covered with these cool temperate timber trees.

Timber for Wood-Pulp and Paper.—The woody fibre of spruce and white pine is ground down in immense quantities and pressed into pulp sheets or boards for export; from these, in turn, paper is made. Canada will not allow the export of timber for pulp manufacture: it must be made into pulp before it is sent out of the country; hence the making of pulp and paper is now the largest manufacturing industry in Canada. Newfoundland has no such regulation, and "pulp-wood" is one of its exports, but pulp and paper are exported in large quantities also. A new paper-mill, recently completed, is capable of turning out 400 tons of "news-print" paper daily. Timber for "pit props" for collieries is also exported from Canada and Newfoundland.

Fibre Plants for Rope, Twine, Sacking, etc.—In different parts of the Empire there are various plants which yield strong fibres somewhat akin to flax in their method of production, but their fibres are seldom used for clothing; their chief uses are for rope, twine, sacks and bags, sailcloth, and carpet and linoleum manufacture. In this big group of useful plant products from the Empire we find the following:—

Jute.—This plant is chiefly grown in Bengal, and its fibres are woven in Calcutta and the Dundee district of Scotland. Several "jute substitutes," or fibres with properties similar to those of jute, are grown in the British West African dominions; a few others are grown in India and in the West Indies. Piassava, which is obtained from Sierra Leone, is a fibre similar to jute in some respects, but it is thicker and tougher, and is used for making mats, brooms and brushes, and similar articles.

Hemp fibres are, perhaps, the most important for the manufacture of cordage, and several of these are grown successfully in the Empire. **Sisal hemp** is a strong fibre obtained from the large leaves of a plant which is grown in the Bahamas, Jamaica, India, Fiji, and in British West Africa; it has also been tried in other British lands. **Mauritius hemp,** as its name indicates, is grown in the island of Mauritius. The first plants were brought to that island at the end of the eighteenth century, but it did not occur to any one to extract the fibre from it until about 1870. The plants are now grown in plantations, and the fibre is extracted carefully. Other British dominions where hemp-like fibres have been introduced include St Helena, India, Ceylon, Natal, Nyasaland, Kenya Colony, Uganda, Rhodesia, and the West Indies. **New Zealand hemp** is a plant of the same order as the lilies: its botanical name is *Phormium tenax*, and it is often referred to as "Phormium." It was known to Captain Cook, who brought it to the notice of Europeans. Its home is New Zealand, but it has been introduced into Natal and Australia. There are other fibres of somewhat similar character, but we have not space to discuss them here.

Dyewoods and Tanning Materials.—Many parts of the Empire produce plants which yield useful dyes, or contain enough tannin in their leaves or bark to make it worth while to grow them or collect them in the wild state. Perhaps the most important of the dyes is **indigo,** which is a valuable article of export from India. Indigo dye is now made artificially, by very difficult processes, from coal-tar chemicals, chiefly in Germany, and this manufacture has reached a high stage of perfection; but natural indigo still finds a place in the market, and

India produced over 19,000 cwt. of the solid dye (sold in cakes) in the year 1924–25. The amount produced seems to be on the decline at present, judging from the following figures which give the amount in cwts. for three years.

1922–23	52,100 cwts.
1923–24	36,200 cwts.
1924–25	19,100 cwts.

Logwood is a useful dye wood which is obtained from British Honduras and from some of the British West Indies.

A very important tanning substance is **gambier**, which is obtained from British Malaya, and is exported to Britain from Singapore. There are many other important tanning materials, among which are the various "wattle" barks of Australia. These trees have been cut down so rapidly that the supplies of bark in Australia are not now great enough for their own tanning industries. Some bark is now imported by Australia from Natal, the "wattle" trees having been grown there from seed imported from Australia a generation ago. This is a good example of the way in which one part of the Empire can help another.

Of other plant products the Empire produces a great variety of **spices**, **medicines**, **scents**, **gums**, and **resins** obtained from trees and shrubs. Most of these are from the hot lands, and it will only be possible to mention a few. **Pepper** comes from British Malaya; **ginger** from the same region, British West Africa, and the British West Indies; **allspice** comes from the British West Indies and British West Africa; **cinnamon** from British Malaya, Ceylon, and the British West Indies;

vanilla comes from Mauritius; **nutmegs** from the British West Indies; and **cloves** from Zanzibar.

Eucalyptus oil, from Australia, is now very well known. **Kauri gum**, from New Zealand, is collected not only from the trees but also from the ground, where it is found in the fossil state in deposits which were formerly covered with dense forests of the kauri pine. The strong-smelling **citronella oil** is produced in Ceylon in large quantities: it is an ingredient of many scented substances used in the cool temperate lands. Most readers of this book must have used **camphor** at some time. This white, strong-smelling substance is obtained from the hot monsoon lands of south-eastern Asia, and British Malaya produces a considerable quantity of this useful material.

Quinine is one of the best-known medicines in cases of fever and dangerous "colds"; **cinchonine** is a closely related substance which is not quite so valuable. They are both obtained from the bark of a tree which is native to the Andes, but is now cultivated in Jamaica, India, and Ceylon.

Vegetable Oils.—Immense quantities of vegetable oils are needed by the modern world for soap manufacture, for lubricants, and some of them for special purification and treatment to be made into substitutes for butter. The British Empire produces enormous quantities of these vegetable oils. Perhaps the best known is **palm oil**, which is the greatest export of Sierra Leone and Southern Nigeria. The tree from which it is produced is a native of the hot, wet lands, and it is found wild in profusion in the regions named. Other British dominions can grow it, but the two named are the most famous.

Ground-nut oil is obtained from the small nuts which have already been mentioned as forming the chief export of Gambia, our smallest dominion in tropical West Africa. **Coco-nut oil** is obtained from a great many of the British tropical regions; the nuts are often dried and exported to Liverpool or Hull, where the oil is extracted. **Cotton-seed oil** is another of these vegetable oils, produced in the cotton-growing regions. It will be noticed that the temperate lands of the Empire have to depend upon the British lands in hot regions for these oils: this is another of the many cases in which different parts of the Empire can help one another. The hot lands produce the raw material; the cooler lands, with their industrial machinery, can work them up into useful products for all the Empire.

Rubber.—This familiar substance, which plays such an important part in our national life, is the solidified sap of many kinds of trees, vines, and even weeds which grow in many tropical regions. The rubber trees are tapped—that is, cuts are made in the bark—and the milky sap or latex is collected in cups or buckets. To make it fit for the many arts and manufactures in which it is used, this milky sap is taken through a complex series of operations which cannot be described here. The result is the well-known sheet rubber which is no doubt quite familiar to many students.

The best rubber is obtained from the juice or sap of a tree which grows wild in the Amazon region of South America. This tree is now cultivated on a vast scale in British Malaya, Ceylon, India, and British West Africa.

There are several other substances which have some of the properties of rubber and which are often spoken of as inferior kinds of rubber. Gutta percha, gutta jelutong, and balata are perhaps the best known of these substances. Not many years ago we were largely dependent upon Brazil and the Belgian Congo for our supplies of the best rubber. Now the Empire is quite self-supporting in the matter, and British Malaya, British West Africa, Ceylon, and a few other regions can produce all that we require.

QUESTIONS AND EXERCISES

CHAPTER XXIV

1. What valuable timbers are shipped from Belize, Georgetown, Freetown, and Rangoon? To what uses are these timbers put?
2. Combine with the other students in your school and try to make a collection of fibres for making rope, twine, etc., which may be bought in different parts of the Empire.
3. (As in Question 2.) Do the same for camphor, kauri gum, eucalyptus oil, citronella oil, indigo, and logwood. Find out, if possible, from what countries they have come.
4. What are the following substances, from what parts of the Empire are they obtained, and what are their uses: copra, balata, jelutong, gambier, manjak?
5. Write an essay on " How Plantation Rubber has become more important than Wild Rubber, and the part played by the British Empire in bringing this about."
6. Here are the figures of the exports of palm oil and palm kernels for the five years, 1919–23, from the four British West African dominions:

	Palm Oil.	*Palm Kernels.*
Gambia . .	(not given)	2,232 tons.
Sierra Leone .	10,994 tons.	250,030 tons.
Gold Coast .	8,816 tons.	26,130 tons.
Nigeria . .	425,642 tons.	979,172 tons.

What products take the place of palm oil and palm kernels in the two dominions which show least trade in those products?

7. Enumerate as many uses as you can to which rubber is put in everyday life.
8. Have you used eucalyptus, or quinine, or camphor? If so, for what purpose?
9. What are palm oil, ground-nut oil, coco-nut oil, cotton-seed oil used for in everyday life?

CHAPTER XXV

THE MINERAL WEALTH OF THE EMPIRE

THE modern world is a busy, working world, making many wonderful things and having all sorts of needs. It cannot go far without sources of power to drive its trains and its trams, its omnibuses and motor-cars, its vans and wagons, its ships and barges. It needs power to pump up water from below, lift coal from the mine, drive the machinery of its thousands of factories, print its books and its newspapers, transmit its messages, make wood into pulp and then into paper, and so on in an almost never-ending story. In our age the sources of power are mainly coal, petroleum, and the water-power of rivers. In the next age new sources of power may be found; we do not know: at present we have to look to the three mentioned. How is the British Empire served in these respects?

Coal.—This is still the most important fuel and source of power. The Empire is abundantly supplied with coal, and much of it is of good quality. It is found, too, widely scattered over the Empire, so that no part is really very far from possible supplies. The British Isles have some of the richest coal-fields in the world, and several of these are close to the coast, so that the coal and its products can easily be shipped abroad.

Newfoundland, the Eastern Maritime Provinces of

Canada, Alberta, Saskatchewan, and British Columbia (with Vancouver) have their coal-fields. Some of the coal-seams of Nova Scotia are among the thickest and best known in the world.

The African dominions have coal in Natal, the Transvaal, Southern Rhodesia, Kenya, and Nigeria. Australia has several coal-fields, the most famous of which is in the south-east of New South Wales, where the familiar name of Newcastle reminds us of a coal-field in the Homeland. Tasmania and New Zealand both have scattered coal-fields of value. In India there are several large coal-fields, and British Malaya has its coal in British Borneo.

It will be seen from this that there is coal almost all over the Empire, but it will probably be necessary for a long time yet for many parts of it to import some coal from the rich fields of Britain. The Mother Country has plenty of coal and to spare, and its miners depend for their earnings to a great extent on the other parts of the Empire buying supplies of this necessary mineral.

Petroleum.—This is now a very important source of power, and here the British Empire is almost entirely dependent upon the oil obtained from other countries. In 1924 the world's output of crude petroleum was about 143 million metric tons;[1] about 2½ million metric tons of this came from the British Empire. We thus depend largely upon the oil-fields of the United States of America, Mexico, and Persia for our supplies. There is great work to be done here in discovering supplies within the Empire. We do not believe, of course, that the Empire is really so badly off as this state of things would imply;

---

[1] A metric ton is 2204 lb.

it simply means that a good deal of discovery and development work remains to be done.

Water-Power.—The use of water-power is extending very rapidly in almost all parts of the world, and you will no doubt be familiar with many ways in which this "white coal" (as many speak of it) is now widely used. Here the Empire is very well off, especially in those parts where rivers come down from the uplands with a fairly regular volume of water. Up to the present the greatest development has been in Canada, and especially in the State of Ontario. Here the famous Niagara Falls supply an enormous amount of power, but there are plans for still more to be drawn from this source. The States of Quebec and British Columbia have also big schemes, while the eastern Maritime Provinces have very great resources still untapped. The neighbouring Dominion of Newfoundland also uses water-power for making wood-pulp and for electricity for its towns, villages, and factories.

In Africa there are tremendous resources, so the engineers tell us. The rivers of that great continent make hundreds of waterfalls, as they drop by stages from the plateau down to sea-level. At each drop there is, of course, water-power available; it only remains to be developed. Already there is a fine scheme in operation at the Victoria Falls, on the Zambezi, and there are many others in our African dominions.

Turning to Australia and New Zealand, you will readily understand how the eastern mountains of Australia, with numerous rivers fed by rainfall all the year round, the uplands of Tasmania, and the Alps of South Island, New Zealand, can easily supply almost inexhaustible quantities of energy. It is again only a case for proper development.

India and Ceylon have not paid much attention to water-power as yet; but quite clearly the water-power of the rivers from the Himalayas could generate a vast quantity of electricity, and do much other work too. And so it is with many of our smaller and more scattered dominions. There is water-power waiting for the skilled engineer to develop it, and to make it fulfil its purpose in the service of man. Perhaps some who read this book may help in that development.

The Metals of the Empire

Here we are very rich indeed, and there are few metals (or their ores) which we cannot obtain in sufficient quantity from the lands of the Empire: we can only look at a few of them.

Iron-ore is the most important, and here the British Isles, Newfoundland and Labrador, Nova Scotia, British South Africa, Rhodesia, India, and New South Wales are in the front rank. It has been said, for example, that the iron-ore deposit of Bell Island, Newfoundland, could supply good ore to the extent of 4000 million tons.

We have **lead** and **zinc** in many British dominions; the Broken Hill Mines of the extreme west of New South Wales are among the most famous in the world. **Tin-ore** is very valuable, and seems to be confined to certain world regions; but the Empire can claim a good share. British Malaya showed us at the Empire Exhibition what it can do; but Nigeria, British South Africa, New South Wales, Queensland, and Tasmania, as well as Cornwall in the "Old Country," can also supply large quantities of tin-ore.

The interesting white metal called **nickel** is now one of the world's important metals. The Province of Ontario easily leads the world in supplies of nickel-ore. **Copper, silver,** and **mercury,**—we have them all, though for these we depend to some extent on other lands. Every boy and girl has heard of manganese steel—steel containing **manganese** to make it tougher and stronger. We have fine manganese supplies in India and Australia. When we come to the precious metal, **gold,** it is a case of the Empire first and all the rest of the world far behind. We have the richest resources yet discovered in South Africa, which turned out more than half the gold of the world in 1925; and we must not forget that of the other "nearly half," Canada, Australia, Rhodesia, India, and British West Africa had a considerable share. The rare and expensive metals, **platinum** and **iridium,** are also found in the Empire.

If we were to enumerate all the minerals of the Empire it would look like a catalogue; let us mention two very different ones, **diamonds** and **asbestos.** The former are ornamental and expensive, and largely a luxury of the rich: the Empire has the richest diamond ground in the world in British South Africa. Asbestos, on the other hand, is a workaday mineral, now of great use in many industries, and playing its part in many manufacturing processes. Quebec has the largest supplies in the world, followed by Southern Rhodesia as a good second best. Rare minerals and common ones, expensive ones and cheap ones, all are well represented in the resources of the British Empire.

QUESTIONS AND EXERCISES

CHAPTER XXV

1. "Instead of exporting so much coal, it will pay England better to export its products." This is quoted from a newspaper. Explain as fully as you can what it means.
2. How is coal connected with the smelting of iron?
3. Why is water-power sometimes called "white coal"? Mention some of the uses of water-power.
4. What do you know about the way in which petroleum is obtained? Mention as many of its uses as you can.
5. Find out, if you can, what metals are mixed or combined together to form bronze, brass, pewter, white metal. From what parts of the Empire can the various components be obtained?
6. What do you know of the uses of tin? Which is the great region for the smelting of tin in the British Empire?
7. Describe the properties of gold, so far as they are known to you.
8. What are the special qualities or properties of diamonds which make them so valuable?
9. State what you know of the uses of asbestos, and mention some particular properties of the mineral which give it an important place in industry and in everyday life.

CHAPTER XXVI

THE EMPIRE: TRANSPORT AND COMMUNICATIONS

We have now glanced at the various parts of our great Empire and at some of the ways in which one part can help another, and it must be clear to us all by this time how very important it is that all parts of the British Empire should be kept well in touch with one another. The means of communication, of travel and transport, should be as perfect as we can make them. The British Isles form the centre, the Mother Country, the Homeland, as it is often called. This must be in ready and constant touch with all the parts, and these should get to know each other as well as possible. To this end our shipping routes, our aerial routes, our telegraphic cables across the oceans, our overland telegraphs, and our wireless stations should all be well developed, up to date, and all of the very best.

The shipping routes used by our great liners, our great cargo boats, and our "tramp steamers" alike need ports of call, where they can obtain fresh water, fresh vegetables, fresh fruit, and other provisions, take in supplies of coal or oil, and receive such repairs as may be necessary from time to time. Hence, scattered all over the world, in all the oceans, there must be these stations, of which Gibraltar, Malta, Aden, Port Louis (Mauritius), Colombo, Cape

Town, Bridgetown (Barbados), St Helena, Singapore, and Hong Kong are all good examples.

The Empire is already linked up with almost every one of its most distant members by telegraph, and really wonderful things are done in the way of rapid communication. In January 1926, the Australian cricket team to tour England in the summer of 1926 was completed, and within a day an Australian writer had a long summary and a full criticism of the selected team in the London *Times*. Such an achievement would have seemed a mad dream a century ago. During the tour mentioned, as we all know, it was possible to read in an Australian newspaper a full account of the day's play in, say, London or Manchester, within an hour or two of the close of play. What is possible in cricket news is, of course, possible in the bigger things of Empire, and the example quoted is but one of many. On 6th November 1926, Mr Bruce, the Prime Minister of Australia, sent a message of greeting to the people of Australia from the high-power station near Rugby at 3.6 p.m. At 3.30 p.m. a reply came through from Sydney (N.S.W.) stating that the message had been received there at 1.9 a.m. (Australian time). Almost immediately after came the announcement from Melbourne that the message had been handed to the Australian newspapers there.

The state of the harvest weather in Australia or in the middle of Canada, the condition of the Indian monsoon, the rise of the Nile in the Sudan, all these and many similar items of news from many other dominions are now broadcast by wireless, as well as forwarded by ordinary telegraph. To do justice to all the needs of Empire we must have a first-rate series of high-power stations at suitable points. The boys and girls who read this book will, it is hoped, see to it that these and similar needs are provided and kept up to that first-rate standard which our Empire should always expect.

The Empire should, of course, have a railway service which is second to none. Let us glance briefly at some of the railways of the various dominions.

Canada.—Already three great main lines carry passengers and freight across the vast stretches of this Dominion, and there are now over 40,000 miles of railways opened for traffic. The Canadian National Railway system operates over 22,000 miles, and the Canadian Pacific Railway Company owns 13,500 miles. The construction of these vast systems cost a great deal, and their upkeep has proved expensive, but over and over again in Canada the making of a railway through a region has brought to light new resources of great value, and these railways have fully justified the expense. To give some idea of the distances to be travelled and the time required in crossing the Dominion we will quote the following figures from *Canada To-day*: Halifax (N.S.) to Vancouver (B.C.), 3775 miles; time, 5 days 18 hrs. Halifax (N.S.) to Prince Rupert (B.C.), 3960 miles; time, 6 days 5 hrs.

Australia.—A generation ago a map of Australia showed a number of railways starting from the coast towns, going some distance into the interior, and there coming to an end. In 1917 the Trans-Australian Railway, from Kalgoorlie in Western Australia to Port Augusta in the south-east of South Australia, was opened, and thus the railways of the east were brought into direct connection with the Western Australian railway system. It is thus possible to travel directly through the five capital cities—Brisbane, Sydney, Melbourne, Adelaide, and Perth—a distance of about 3500 miles, in six days. It is now proposed to construct a railway from Oodnadatta, in South Australia, to Port Darwin in the Northern Territory, a direction at right angles to that of the present Trans-Australian line. When this has been done it will be possible to travel by rail from east to west, or from south to north, completely across the continent. At the end of 1924 the whole of the Commonwealth had about 27,000 miles of railways open for traffic.

South Africa.—In the Union of South Africa there are 11,500 miles of railway open, and if we add the 2500 miles in the two Rhodesias, it makes a grand total for British South Africa of 14,000 miles. It was a dream of the late Cecil Rhodes (whose name is commemorated in the word Rhodesia) that there should one day be a railway right through "The Dark Continent" from Cape Town to Cairo—the "Cape to Cairo Railway." It is now possible to travel by rail through British territory to the northern boundary of Rhodesia, that is, about 2300 miles from Cape Town; and the railway continues beyond British territory to within less than 10 degrees of the Equator. All the provincial capitals of British South Africa are connected with Cape Town and with each other by rail, and, of course, the other important ports, Durban and Port Elizabeth, are also linked up in the railway system.

New Zealand.—This island Dominion has clearly not the same opportunity for the building of long railways as those dominions we have been discussing, but there is already a total length of 3200 miles in the two islands, of which considerably over half is in South Island. From Wellington, the capital, you may travel by rail right through the middle of North Island to Auckland, the largest city, and then forward to Russell, situated in the long, narrow, northern peninsula. In South Island it is possible to travel by rail nearly the full length of the island, keeping close to the east coast most of the way. There is also a railway across the island, from Christchurch to Greymouth, a distance of 145 miles. This line passes through the beautiful Otira Gorge, and the Arthur's Pass Tunnel which is 5½ miles long—said to be the longest mountain railway tunnel in the British Empire.

Newfoundland.—This old-established British dominion has nearly 1000 miles of railway. The most important line—the main line of the island—starts from the capital, St John's, and takes a semicircular course through the middle of the country to Port aux Basques in the south-west. At various points along this main route some eight branches go off, mostly to places on the numerous bays of Newfoundland's varied coast. Cross-country express trains leave St John's three times a week for Port aux Basques where they make a connection with a steamship which runs to North Sydney in Cape Breton Island, a journey of eight hours. The return steamboat and express trains connect with the capital on the alternate days.

The Indian Empire.—This great empire, with its enormous population, needs and possesses a great railway system. The total length constructed up to the present is about 45,000 miles, more than equal to that of Canada. The railways of India are mostly of the 5′ 6″ gauge, or the metre (3′ 3⅜″) gauge. (English railways are mostly of the 4′ 8½″ gauge.) Nearly all the Indian railways are state-owned, but many are worked by private companies to whom they are leased. To work these railways a staff of nearly 750,000 persons is needed, of whom only 6500 are Europeans.

All the great cities are linked up in its complex railway system. Delhi, the capital of the Indian Empire, and Calcutta, Madras, and Bombay, the great provincial capitals, are connected by main lines, while many cities such as Patna, Benares, Agra, and Lahore are railway centres comparable to those of the British Isles. For example, seven railways converge on Benares, thus reminding one of Carlisle or York, Leeds or Derby, in the Mother Country.

It would serve little good purpose if we were to give here a list of the separate railway systems, but the largest of all may receive special mention. This is the North-Western State Railway which runs from Delhi (the capital) to the north-west, spreading over much of the Punjab, the North-Western Frontier Province, and Sind, and finally sending a branch line through Baluchistan to the Persian border.

Ceylon is connected to the Indian mainland by railway and steamer ferry combined, and there is an interesting project for making a causeway across the Strait, building on the rocks known as Adam's Bridge as a foundation, and thus making a railway connection to replace the present ferry.

Railways in Islands of the Empire.—Railways have been constructed in many islands of the Empire. In the larger islands such as Ceylon, Vancouver, Tasmania, Prince Edward Island, and Cape Breton Island, which are either self-governing provinces or states, or important units of the Empire, there are well-made and carefully maintained railways, which are connected with the railways of the neighbouring mainland either by steam ferries or regular steamship routes.

Some smaller islands, more distant from the larger units of the Empire, which have railway services are Malta and Cyprus in the Mediterranean, Jamaica, Trinidad, and Barbados in the West Indies, Mauritius in the middle of the Indian Ocean, and Fiji in the middle of the Pacific Ocean.

Other Railways in the Empire.—Finally it may be mentioned that nearly every continental Crown colony, protectorate, dependency, and mandated territory has its railway system. Some of these have been constructed and are maintained under great difficulties, such as the 100 miles of railway in British Guiana, the short length of 25 miles in British Honduras, and the 140 miles in British North Borneo. Some, however, are well established and very important systems, of which we may quote the 1000 miles of railway in the Federated Malay States. Here, at the southern end of the Malay Peninsula, a somewhat famous causeway carries a double track railway and a roadway across the Johore Strait into the Island of Singapore. We may also mention the well-known and important main line, nearly 600 miles in length, which crosses Kenya from Mombasa Island on the coast to Kisumu on Lake Victoria. This main line gives off several branches. Lastly, we may call attention to the

1260 miles of railway opened in Nigeria, on which a regular weekly "boat-train" now runs between Lagos and Zaria.

We must not forget to look after our canals and the navigation of our rivers. Canada has already about 450 miles of canals, the most important of which are the Welland Canal, connecting Lake Erie with Lake Ontario, and so avoiding the obstacle of Niagara Falls, and the Sault Ste Marie Canal, connecting Lakes Superior and Huron, and thus avoiding the Sault Ste Marie Falls. India is a country of navigable rivers and important barge canals, many of which are also used as irrigation canals, and in that land of dense population it will be necessary to look well after all the means of inland navigation. The Indian Empire has about 4400 miles of navigable waterways.

We are only at the beginning of navigation by air, but it will clearly be necessary to see that this form of transport and travel is fully developed. Already a regular route from Britain to India is well on the way, and before many years have passed it is more than likely that regular air services between the various parts of the Empire will be an accomplished fact. In the autumn of 1926, Sir A. Cobham made his historic flight from England to Australia and back, thus showing what can be done in the way of linking up parts of the Empire which are on opposite sides of the globe.

All this is of the first importance to our Empire: we must not only be able to obtain cheaply, quickly, and regularly the things which one part of the Empire produces and another needs, but we must encourage that regular meeting and discussion between peoples of the different dominions which will help us to understand each other better and to work together, as common members of a great Empire should.

QUESTIONS AND EXERCISES

CHAPTER XXVI

1. What are the likely places of call for vessels sailing between the following places: (*a*) London and Barbados, (*b*) London and Cape Town, (*c*) Liverpool and the Falkland Islands, (*d*) Liverpool and Mauritius, by the Cape route, (*e*) Southampton and Jamaica?
2. Similarly (see Question 1), what are the likely places of call for vessels sailing through the Suez Canal from any British port to Zanzibar, Mauritius, Bombay, Calcutta, Hong Kong, Perth, Brisbane, respectively?
3. Again, find the likely places of call for vessels sailing between (*a*) Cape Town and Bombay, (*b*) Durban and Calcutta, (*c*) Mombasa and Hong Kong, (*d*) Madras and Perth.
4. What are the difficulties of navigation on (*a*) the St Lawrence, (*b*) the Murray, (*c*) the Orange River, (*d*) the Nile in Uganda and the Anglo-Egyptian Sudan?
5. Which is the shorter route from London to Auckland, (*a*) by the Suez Canal, or (*b*) by the Panama Canal? Are there any other considerations to take into account besides that of distance?
6. Name a few islands in the British Empire which are away from likely tracks of any regular steamship or sailing routes. How can these places be kept in touch with what is happening in the rest of the Empire?
7. The result of an election is being declared in England at 10 p.m. Within one hour that result is known in (*a*) Sydney (N.S.W.), (*b*) Vancouver (B.C.). What are the official times of receiving that result?

8. What British Empire States would you pass through in a train journey from (*a*) Halifax (N.S.) to Prince Rupert (B.C.), (*b*) Cape Town to Broken Hill (Northern Rhodesia)?
9. Work out a railway route from Perth (W.A.) to Brisbane (Q.). What States and principal towns would you pass through?

CHAPTER XXVII

THE GOVERNMENT OF THE EMPIRE

THIS book is intended for the boys and girls of the Empire, and it would be out of place to include a lengthy account of the way in which that Empire is governed; that is rather more a matter for adults, and young people need not be troubled with much detail. The readers of this book should, however, know some of the simpler principles, and it is hoped they will fill in the details when they are a few years older.

In some of the earlier chapters we have not followed divisions according to government strictly; thus we included the Irish Free State with the rest of the British Isles in our brief sketch of the geography; similarly, Ceylon was studied with India. The government of these two units of the Empire will be mentioned separately in the following account.

The British Empire consists, for purposes of government, of two broad groups very unequal in size:

(1) Great Britain, Northern Ireland, the Isle of Man, and the Channel Islands.

(2) The Irish Free State, India, the Dominions, Colonies, Protectorates, Dependencies, and the Mandated Territories.

In this book we have used "Dominions" for those parts of the Empire which have self-government. These are (in alphabetical order): Australia, Canada, Irish Free State, Newfoundland, New Zealand, South Africa. Let us take the Dominion of Canada as a type because it was the first to have responsible self-government. The Government is somewhat similar to that of Great Britain and Northern Ireland. The King is head of the Government, and he is represented in Canada by a Governor-General. There is a Dominion Parliament made up of two Houses, the Senate and the House of Commons. The Senate consists of not more than 104 members, who are nominated by the Governor-General and hold office for life. The House of Commons is elected by the people, and consists at present of 235 members. An election must take place at intervals of five years at the most. In tabular form the Government may be thus represented:

(1) The KING—represented by the Governor-General.
(2) The Senate—members nominated for life.
(3) The House of Commons, elected for five years.

The Dominion Parliament meets at Ottawa, which is the capital of the Dominion. The nine separate Provinces have their separate Parliaments for their own internal affairs. The Provinces of Nova Scotia and Quebec have each two Chambers, the rest of the Provinces have Parliaments of one Chamber only.

The Commonwealth of Australia is made up of six original States, and the Commonwealth capital is Canberra, which has been constituted a separate Federal Territory with an area of 960 sq. miles. Here is the meeting place of the Commonwealth Government. The King is represented by a Governor-General; the Senate of 36 members is different from that of Canada in that they are elected, not nominated; the House of Representatives consists at present of 76 elected members.

The six States have their separate Parliaments meeting at their own capitals and transacting their own local affairs. Queensland has a Parliament of one Chamber or House only; the other five States have Parliaments made up of two Houses.

The Dominion of New Zealand is similarly governed by a Governor-General representing the King, a Legislative Council consisting of 41 members elected for a period of seven years, and a House of Representatives consisting of 80 members elected for a period of three years.

Newfoundland has a Governor representing the King, a Legislative Council of not more than 24 members, and a House of Assembly consisting of 36 representatives.

The Union of South Africa.—Here, again, is a Governor-General (who is also High Commissioner for South Africa), a Senate of 40 members, partly nominated, but the majority elected, and a House of Assembly of 135 members. The Union of South Africa is peculiar in having two capitals; Cape Town is the seat of the Legislature, Pretoria the seat of the Government.

The Irish Free State.—The Governor-General again represents the King; there is a Senate of 60 members, and a Chamber of Deputies of 153 members at present.

India is an Empire in itself, and the King of Great Britain and Ireland is Emperor of India. The Emperor is represented in India by the Viceroy and Governor-General of India. There is a Council of India in England, appointed by the Secretary of State for India; and there is a Legislative Assembly in India itself, made up largely of elected members. The Government is being entrusted more and more to Indians, and the gradual development of self-government is being encouraged, so that India may eventually take its place as an integral part of the British Empire.

Some Examples of Colonial Governments

We will now see how some of the Colonies, which have not yet been entrusted with *full* self-government, are governed. The methods in the different Colonies are so varied that it is best to illustrate by a few typical cases selected from various parts of the Empire.

Ceylon.—There is a Governor, a Council of 7 members, and a Legislative Council of 49 members, of whom 23 are elected.

Mauritius.—Here the Government is vested in a Governor, an Executive Council, and a Council of Government of 27 members, 10 of whom are elected.

Barbados.—The Governor has a Council of 9 members (appointed by the King), and there is a House of Assembly of 24 members, elected annually by the people.

Falkland Islands.—The Government is in the hands of a Governor, an Executive Council of 4 members, and a Legislative Council of 5 members. Some of the members of each Council are Government officials.

Fiji.—The Governor is assisted by an Executive Council consisting of 6 members, and a Legislative Council of 12 members presided over by the Governor. Of these 12 members one is an Indian, two are Fijians, and 7 are elected by persons of European descent.

Malta.—This island enjoys an unusual measure of self-government. There is a Governor and Commander-in-Chief. The Legislature consists of a Senate of 17 members, some of whom are nominated, and a Legislative Assembly of 32 members, all of whom are elected.

The above examples will give the young student some idea of how the British Empire is governed. The aim throughout is to govern well, and in the best interests of the people themselves, and so to train them that in time the whole Empire shall be a Family or Commonwealth of self-governing units.

As an Empire we are not in opposition to the rest of the world in anything that makes for the best interests of the human race. Our whole ambition is to make the British Empire the best instrument for the good of its people that the world has yet seen. In making our Empire great and good we are helping the progress of the world. Let us all remember what a great trust we hold in our mighty Empire; let us work for its progress, and make of it an Empire of which we ourselves may be proud, and which the world will be compelled to admire.

" We are all members one of another."

The Imperial Conference adopted, on 19th November 1926, a report which will make, subject to His Majesty's approval, an alteration in the King's title, which they recommend should henceforward read :

"George V, by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas King, Defender of the Faith, Emperor of India."

QUESTIONS

CHAPTER XXVII

1. Find Halifax, Charlottetown, St John's, St John, on a map of British North America. Of what Provinces or Dominions are they the respective capitals?
2. What are the capitals of Ceylon, Tasmania, New Zealand, Mauritius, Barbados?
3. Which capital of a self-governing Dominion is farthest from London? How far is it from one to the other approximately?
4. Name the capitals of the self-governing Dominions. Which of them are also capitals of States or Provinces?
5. Why is London a convenient place for the meeting of an Imperial Conference?
6. What is the essential difference between the Senate of Canada and the Upper Houses of the other Dominions? Which is most like the British Parliament in this respect?
7. What is meant by a Legislature?

A SUMMARY OF THE BRITISH EMPIRE, IN THE ORDER TAKEN IN THIS BOOK. THOSE PLACES WHOSE NAMES ARE IN BLACK TYPE ARE SELF-GOVERNING.

	Area in Sq. Miles.	Approximate Population.
A. The **British Isles,** including the Channel Islands	121,633	48,000,000
(The Irish Free State)	(26,600)	(3,150,000)
B. *The Mediterranean and Red Sea Route—*		
Gibraltar	2	21,000
Malta	118	230,000
Cyprus	3,584	311,000
Aden, Perim, and dependencies	4,280	156,500
Sokotra	1,382	12,000
C. *Western Asia—*		
Palestine[1]	9,000	770,000
Iraq[1]	143,250	2,900,000
D. Indian Empire	1,802,629	320,000,000
Ceylon	25,481	4,600,000
E. *Malaysia and Eastern Asia—*		
Straits Settlements	1,609	890,000
Federated Malay States	27,506	1,325,000
Other Malay States ruled under British advice	23,486	1,125,000
Borneo, Sarawak, etc.	77,000	850,000
Hong Kong and Kowloon	391	625,000

---

[1] Ruled under a mandate from the League of Nations.

	Area in Sq. Miles.	Approximate Population.
F. *Australasia*—		
The Commonwealth of Australia . . .	2,974,581	5,500,000
Papua	90,540	250,000
New Guinea[1] . . .	86,000	350,000
Dominion of New Zealand, with neighbouring islands	103,578	1,240,000
G. *Pacific Ocean*—		
Fiji Islands . . .	7,435	165,000
Tonga Islands . . .	385	24,000
Gilbert and Ellice Islands .	148	31,000
Solomon Islands[1] . .	11,000	150,000
Samoa[1]	1,260	37,000
Nauru[1]	12	2,000
H. *North America*—		
Dominion of Canada .	3,729,665	8,800,000
Newfoundland . .	42,734	264,000
Labrador	120,000	3,700
I. *Tropical America*—		
Bahamas	4,404	53,031
Jamaica and its dependencies	4,520	862,000
Windward Islands . .	526	162,000
Leeward Islands . .	715	127,000
Barbados	166	200,000
Trinidad and Tobago .	1,977	391,000
British Honduras . .	8,592	45,500
British Guiana . . .	89,480	300,000

---

[1] Ruled under a mandate from the League of Nations.

	Area in Sq. Miles.	Approximate Population.
J. *Atlantic Ocean—*		
Bermudas	19	22,000
Ascension	34	250
St Helena	47	3,800
Tristan da Cunha	45	130
Falkland Islands	6,500	3,250
K. **South Africa—**		
Union of South Africa	473,089	7,000,000
Basutoland Protectorate	11,716	500,000
Swaziland ,,	6,678	135,000
Bechuanaland ,,	275,000	153,000
South-West Africa[1]	322,400	240,000
L. *Tropical Africa—*		
Southern Rhodesia	149,000	805,000
Northern Rhodesia	291,000	935,000
Nyasaland	39,573	1,200,000
Tanganyika[1]	365,000	400,000
Kenya	245,000	2,630,000
Uganda	110,300	3,000,000
Anglo-Egyptian Sudan[2]	1,014,400	3,400,000
British Somaliland	68,000	300,000
Zanzibar and dependencies	1,020	200,000
Nigeria	363,000	18,000,000
Gold Coast and dependencies	80,235	2,000,000
Sierra Leone	31,000	1,400,000
Gambia	4,134	240,000
M. *Indian Ocean—*		
Mauritius and dependencies	809	380,000
Seychelles and dependencies	156	25,000

---

[1] Ruled under a mandate from the League of Nations.
[2] Ruled jointly by the British and Egyptian Governments.

A GLOSSARY OF SOME WORDS USED IN THE BOOK

Allspice. A pungent and aromatic spice prepared from the berry of the pimento, a tree of the myrtle family. The tree is a native of the West Indies, where it is cultivated.

Antiseptic. Tending to prevent putrefaction; destroying the bacteria which cause disease.

Artesian Wells. Bore-holes of small diameter sunk into water-bearing rocks. Such "wells" are so called because they were first tried at Artois in France.

Asbestos or Asbestus. A fibrous mineral which is not affected by fire. It is used in fire-proof clothing, packing, curtains, roofing, etc.

Asphalt or Asphaltum. A brown or black mineral which is similar in properties to coal-tar pitch. "Natural pitch."

Atoll. A ring-like coral reef surrounding a central lagoon.

Balata. A kind of gum obtained from a tree in tropical America, especially British Guiana. It is used as a substitute for gutta-percha; and it is also known as Surinam gutta-percha.

Camphor. A white, crystalline, strong-smelling substance obtained from the camphor laurel, which is a native of south-eastern Asia.

Cassava. A starchy foodstuff obtained from the manioe or tapioca plant.

Cellulose. An inert chemical substance, a compound of carbon, hydrogen, and oxygen, forming the chief component of the hard parts of wood and other plant tissues.

Chrome Ore. Naturally occurring compounds containing the metal chromium. In the arts the metal is combined with steel to form some very useful alloys, one of which is rustless steel.

Cinchonine. A chemical compound (an alkaloid) which can be obtained from cinchona bark. (Also see Quinine.)

Cinnamon. Aromatic bark of several kinds of tropical laurels; it is much used as a spice.

Citronella. A sweet-smelling grass which yields an oil much used in perfumery. The grass is a native of south-eastern Asia.

Copra. The dried kernel of the coco-nut.

Corals. A group of lowly organisms, mostly marine, akin to the hydra, sea-anemones, etc. Many of them are colonial organisms; that is, a great number of individuals form a complete corallum. As a rule they form an external case or tube made of calcium carbonate or limestone.

Cutch or Catechu. Resinous, astringent substances obtained from certain tropical plants in Malaysia, and used for tanning and dyeing. (See Gambier.)

Deciduous. Used with reference to trees which cast their leaves at certain seasons, usually the approach of winter.

EUCALYPTUS. A genus of myrtle-like trees, which includes the most important of the Australian trees.

FEDERATED. A word applied to States which have agreed to work together, according to a compact or bargain. The individual States retain limited powers.

FIORDS. Long, narrow, deep openings in the coast, usually with steep, rocky banks. The type is found in the west of Norway.

GAMBIER. A yellowish kind of cutch or catechu obtained from a shrub in Malaysia ; it is used in tanning and dyeing. (See Cutch.)

GEYSIR or GEYSER. A spring which ejects hot water and steam at intervals which may be irregular or fairly regular.

GLACIER. A " river of ice." A mass of ice moving over the land slowly downwards from the regions of perpetual snow.

GRAPHITE, known also as " black lead " and " plumbago." A soft, black form of carbon, of metallic appearance. Found in certain rocks in many parts of the world.

GROYNE. A projection built out from the shore into the sea to prevent the drift of sand and pebbles.

GUANO. The accumulated dung of birds, found chiefly on islands and near the shore in regions of low rainfall.

GUM ARABIC. A dried gum obtained from the stem and branches of several kinds of Acaciæ, especially from species which grow in the dry regions of northern Africa. A substance similar to rubber, prepared from the juice of a number of trees which grow in the Malay region.

INDIGO. A blue dyestuff obtained from several species of plants which grow, *e.g.* in India. It is also made artificially by very complex chemical processes.

JARRAH. A species of Eucalyptus tree, native to Australia. The wood is dark and close-grained, and is much like mahogany in appearance.

JELUTONG or GUTTA JELUTONG. An inferior kind of rubber obtained chiefly from Malaysia.

KAURI. A kind of pine tree native to New Zealand.

KAURI GUM or COPAL. The resin or gum of the Kauri pine, found in yellow or brown lumps in the soil where forests of the Kauri tree have grown.

LEGISLATURE. The body of persons in a State to whom is entrusted the making of laws for the State.

MANDATED. Refers to territories which have been handed over by an order or authoritative command of the League of Nations.

MANGANESE. A greyish-white, brittle metal, which forms very important alloys with steel.

MANJAK. A pure kind of natural pitch, found in irregular veins in certain rocks in Barbados, and probably resulting from petroleum (or mineral oil) ; chiefly used for making good quality black enamels.

MAORIS. The aboriginal people or natives of New Zealand. They are a Polynesian people, tall and vigorous.

MERIDIAN. A great circle on the globe passing through the poles and any given place.

MERINO. A kind of wool which is long and silky in fibre. The breed of sheep from which merino wool is obtained.

MILLET. A name given to small-seeded cereal grasses, the seeds of which are used as food.

MOHAIR. The fleece of the Angora goat. The name is often used for the goat itself. The rearing of Angora or Mohair goats is now carried on in the Cape Province, South Africa, where there are far more Angora goats than in Asia Minor.

MONSOON. A periodic or seasonal wind, especially in Southern Asia and the Indian Ocean. The word is also used to connote the rainy season due to the south-west monsoon in India.

MOSQUITOES. Small flies, the females of which, especially in the tropics, puncture the skin of animals and man to suck up their blood. Some species thus transmit the minute organisms that cause certain diseases such as yellow fever, malaria, etc.

NICKEL. A hard, almost silver-white metal, which does not rust readily.

PHOSPHATES. Compounds of phosphoric acid, and so containing phosphorus and oxygen and sometimes hydrogen. They are greatly in demand as artificial manures.

PLATINUM. One of the most expensive of the metals in common use. It is heavy, silver-white, and has a very high melting-point. It is not readily attacked by any common chemicals, and does not "rust."

QUININE. A bitter chemical, an alkaloid, obtained from the bark of some species of cinchona. Its compounds are used to prevent fevers.

RAIN SHADOW. Suppose rain-bearing winds blow against and pass over a mountain range, the windward side is wetter than the other side. The drier region over the mountains is said to be in a rain shadow.

RAMIE. A nettle-like plant from which a strong, silky fibre is obtained. The name is also used for the fibre itself.

RATTAN (Canes). Several species of climbing plants with long cane-like stems. The canes or stems are used as walking-sticks, for wicker-work, etc.

RAYON. A name sometimes used for "artificial silk," the silky fibres obtained from cellulose by complex chemical and mechanical processes. (See Cellulose.)

RIA. A river mouth; a coastal opening which becomes narrower and shallower from the mouth inland.

RIFT VALLEY. A valley let down between two somewhat parallel faults.

Salinity. The proportion of salts in a given weight of sea water. In the case of the sea and salt lakes usually expressed in parts per thousand.

Savana or Savanna. Grassy plains in the tropics, usually with scattered clumps of trees.

Sesame. An oil-bearing plant which is cultivated in the tropics. The oil is expressed from the seeds, and is also known as Gingelly oil.

Sisal. Sisal hemp or henequen is obtained from the fleshy leaves of an agave grown in Central America and the West Indies. The strong fibres obtained from the leaves by "retting" (that is, allowing the leaf-tissues to become soft and pulpy), are the sisal of commerce. These fibres are used for weaving sacks, bags, sailcloth, etc.

Spruce. Evergreen trees of the natural order Coniferæ. They are widely grown in Canada and Newfoundland, one species chiefly for the sake of the timber and one (black spruce) for the manufacture of paper-pulp.

Staple. Used to describe the length and general character of the fibres of cotton, wool, flax, etc., before spinning.

Tannins. Substances containing a large proportion of tannic acid. They are used for converting hides and skins into leather, the process being called tanning.

Tapioca. A granular preparation of cassava starch, used as a food.

Textiles. Substances which are woven; woven fabrics, made of fibres of cotton, wool, linen, silk, etc.

Tow. The broken and waste bits of flax and hemp made in preparing these fibres for weaving.

Trochus. A spiral or coiled shell which goes to a point, somewhat after the fashion of a common whelk, but of a different shape; exported from tropical lands in the west of the Pacific Ocean and Malaysia.

Tsetse Fly. A genus of flies found in central and southern Africa which by their bite convey diseases fatal to cattle, horses, and buffaloes. One species conveys the germs of sleeping sickness to man. About fifteen species are known.

Tundra. The frozen desert plains of Siberia, Russia, and North America.

Vanilla. An extract used as a flavouring matter in confectionery; it is obtained from the pod-like capsules of several species of climbing orchids which grow in tropical America.

Veld or Veldt. The open, dry pasturage country of the South African plateaux.

Wood-pulp. Material made by the grinding down of wood, or by treating it chemically; it is used chiefly in the manufacture of paper. Fir, spruce, and poplar are the favourite kinds of timber used.

INDEX

Adam's Bridge, 33, 159.
Adelaide, 53, 60, 157.
Aden, 17, 25, 154.
Africa, 96.
Alberta, 78, 81.
Alcock (and Brown), 86.
Allspice, 143.
Almonds, 23.
Alpaca, 133.
Amirantes Islands, 124.
Andaman Islands, 121.
Anglo-Egyptian Sudan, 111.
Antipodes Islands, 68.
Appalachian, Mts., 74.
Apples, 77, 128.
Apricots, 58, 128.
Arabia, 23.
Arakan Yoma, 30, 34.
Arawaks, 91.
Armenia, 24.
Artesian Wells, 54, 56.
Arthur's Pass, 158.
Asbestos, 57, 80, 106, 152.
Ascension Island, 93.
Ashanti, 118.
Asphalt, 90.
Assam, 27, 36.
Atbara, R., 111.
Atlantic Telegraph Cable, 84.
Atoll, 70.
Auckland, 66.
Australia, 2, 49, 51, 165.

Babylon, 25.
Bacon, 78, 130.
Bagdad, 25.
Bahamas, Is., 88, 91.
Bahrein Islands, 25.
Bahr el Ghazal, R., 111.
Balata, 90, 146.
Baluchistan, 27, 34, 37.
Bamboo, 46, 109.
Bananas, 58, 69, 90, 128.
Bantus, 102.
Barbados, 88, 90, 131, 155, 167.
Barrier Reef, 56.
Basra, 25.
Basutoland, 102.
Bechuanaland, 102.
Beef, 59, 129.
Bengal, Bay of, 43.
Berbera, 112.
Bermudas, Is., 93.
Berries, 86, 128.
Blackall, 56.
Blacklead, 40.
Bloemfontein, 100, 103.
Blue Nile, R., 111.
Bombay, 27, 41, 159.
Borneo, 45, 47.
Brahmaputra, R., 29, 31.
Bridgetown, 92, 155.
Brisbane, 54, 60, 157.
British Columbia, 2, 75, 78, 80.
British Empire Exhibition, 57, 65, 128.
British Guiana, 90.
British Honduras, 88, 160.
British Isles, agriculture, 11.
  cities and towns, 12.
  climate, 9.
  manufactures, 11.
  minerals, 9.
Broken Hill Mine, 57.
Brown (and Alcock), 86.
Brunei, 47.

Buddhists, 3.
Burma, 27, 34, 36, 140.
Butter, 59, 78, 129.

Cabot, John, 84.
Caicos Island, 88.
Calcutta, 41, 159.
Calgary, 82.
Camphor, 144.
Canada, Dominion of, 2, 72.
Canadian Dominion Government, 165.
Canadian National Railway, 156.
Canadian Pacific Railway, 156.
Canberra, 60.
Cancer, Tropic of, 34, 88, 115.
Canterbury lamb, 130.
Cape Breton Island, 78, 160.
Cape of Good Hope, 97.
Cape Race, 86.
Cape to Cairo Railway, 157.
Cape Town, 100, 102.
Cape York, 50, 53.
Capricorn, Tropic of, 52, 55.
Captain Cook, 142.
Caribs, 91.
Cascade Mountains, 72, 74.
Cassava, 110.
Cattle, 59, 66, 77, 106, 129, 138.
Ceylon, 27, 33, 36, 40, 158, 167.
Channel Islands, 9.
Cheese, 59, 66, 78, 129.
Cherrapunji, 37.
Cherries, 77.
China, 47.
Christchurch, N.Z., 66.
Christians, 3.
Christmas Island, Indian Ocean, 122.
Christmas Island, Pacific, 70.
Chrome-ore, 106.
Cinchonine, 144.
Cingalese, 33.
Cinnamon, 124, 143.
Cities and towns, Britain, 12.
Citronella, 40, 144.
Cloves, 113, 144.
Clyde, N.Z., 65.
Coal, 9, 40, 66, 78, 101, 106, 119, 148.
Cobham, Sir A., 161.
Cocoa, 69, 90, 119, 129.
Coco de Mer, 124.
Coco-nuts, 40, 46, 68, 90, 110, 113, 118, 122.
Cocos Islands, 122.
Cod, 87, 130.
Coffee, 46, 90, 108, 110, 129.
Colombo, 41.
Columbia River, 72, 74.
Communications, 4.
Cook Islands, 69.
Cook, Mt., 63.
Cook Strait, 63.
Copper, 56, 80, 101, 106.
Copra, 46, 68, 113, 119, 122.
Coral, 56, 69, 88.
Cornwall, 8.
Cotton, 11, 25, 39, 69, 90, 107, 110, 119.
Cotton-seed oil, 145.
Cutch, 47.
Cyprus, 18, 160.

Dairy-farming, 77.
Dar es Salaam, 108.
Darling, R., 50.
Deccan, 29, 32, 33, 37.
Deepest boring, 56.
Delhi, 41, 159.
Devon, 8.
Diamonds, 101, 152.
Diego Garcia, Is., 123.
Dodo, 123.
Drakensberg, Mts., 100.
Dubbo, 53, 76.
Dublin, 13.
Dunedin, 66.
Durban, 97, 102.

East London, 103.
Ebony, 109.
Edmonton, 82.
Egmont, Mt., 65.

Elgon, Mt., 111.
Ellice Islands, 70.
Entebbe, 111.
Equator, 34, 47, 49, 96, 116.
Erie, Lake, 75.
Eskimos, 82.
Eucalyptus, 58, 144.
Euphrates, R., 24.
Everest, Mt., 29.

Falkland Islands, 94, 167.
Federated Malay States, 43.
Fiji Islands, 69, 160, 167.
Fiords, 65, 86.
Fisheries, 86, 130.
Flax, 133, 136.
Flying fish, 131.
Fraser, R., 72, 74.
Freetown, 116.
French (in Canada), 81.
Friendly Islands, 69.
Funafuti, Is., 70.

Gambia, 115.
Gambier, 46, 143.
Ganges, R., 29, 32.
Georgetown, 92.
Geysers (Geysirs), 63.
Ghats, Mts., 32.
Gibraltar, 2, 17, 155.
Gilbert Islands, 70.
Goats, 101, 112.
Gold, 40, 47, 57, 66, 78, 101, 106, 119, 152.
Gold Coast, 118.
Grapes, 58.
Graphite, 40.
Great Australian Bight, 52.
Great Barrier Reef, 56.
Great Dividing Range, 50.
Great War, The, 21.
Greeks, 19.
Greenheart, 90, 140.
Ground-nuts, 106, 110, 119, 145.
Guano, 25, 70, 123.
Guinea, Gulf of, 118.
Guineas, 119.
Gulf of Carpentaria, 52.
Gulf Stream, 93.
Gum-arabic, 112.
Gutta-jelutong, 47, 146.
Gutta-percha, 46, 145.

Halifax, N.S., 82.
Hamilton, Ontario, 82.
Hams, 78.
Hemp, 121, 123, 141.
Herring, 87.
Hervey Islands, 69.
Hides, 111, 113, 119.
Himalayas, 29, 37.
Hindu Kush, 29.
Hindus, 3, 32, 81.
Hobart, 54, 60.
Hokitika, 65.
Honduras, British, 88, 160.
Hong Kong, 47.
Hot springs, 63.
Hudson Bay, 75, 96.
Huron, Lake, 75.
Hyderabad, 37.

India, 27, 166.
Indian Civil Service, 28.
Indian Ocean, 27, 121.
Indians, American, 81, 91.
Indigo, 40, 142.
Indus, R., 29, 31.
Invercargill, N.Z., 66.
Iraq, 24, 37.
Iridium, 152.
Irish Free State, 13, 164, 166.
Iron (and ore), 66, 80, 86, 151.
Irrigation, 25, 32, 38, 58, 65, 77, 106, 110, 112, 134.
Irymple, Victoria, 58.
Ivory, 119.
Ivory-nuts, 68.

Jamaica, 21, 88, 91, 160.
Jarrah, 58, 140.
Jelutong, 47, 146.
Jerusalem, 21.
Jews, 3, 23.

Johannesburg, 100, 102.
Johnstone, Sir H. H., 106.
Jordan, R., 21, 23.
Judea, 23.
Jute, 39, 141.

Kalgoorlie, W.A., 59.
Karachi, 38.
Karakoram, Mts., 29.
Karoo, 97.
Kashmir, 28, 137.
Kauri (pine), 140.
  gum, 144.
Keeling Islands, 122.
Kenya Colony, 109.
Kenya, Mt., 109.
Kew Gardens, 46.
Khartum, 112.
Khasi Hills, 37.
Kilimanjaro, Mt., 108.
Kimberley, 100, 103.
Kingston (Jamaica), 92.
Kirthar, Mts., 29, 34.
Kisumu, 111, 160.
Kosciusko, Mt., 50.
Kowloon, 47.
Kurdish, 25.
Kuria Muria Islands, 25.

Labrador, 84.
Laccadive Islands, 121.
Lachlan, R., 50.
Lagoon Islands, 70.
Lake District, 8.
Lamb, 130.
Languages, 3, 18, 25, 27, 81, 123.
Laurentian Highlands, 74.
Lead, 57, 80, 86, 151.
League of Nations, 21, 68, 102, 108, 118, 170.
Leather, 138.
Leeward Islands, 88.
Lemons, 23, 58, 106, 128.
Limes, 90, 128.
Limestone, 21.
Limpopo River, 105.
Linen, 135.
Livingstone, 106.
Lobsters, 87, 130.
Logwood, 90, 143.
London, England, 12, 66.
  Ontario, 82.

MacArthur, John, 58.
Mackenzie, R., 74.
Madras, 27, 159.
Mahè, 123.
Mahogany, 90, 119, 140.
Maize, 25, 38, 58, 69, 100, 107, 126.
Makwar, 112.
Malaria, 32, 105, 108, 110.
Malaya, 43, 46, 160.
Malay Peninsula, 43, 46, 160.
Malays, 33, 43.
Maldive Islands, 121.
Malta, 17, 154, 160, 168.
Manapouri, Lake, 63.
Mandated Territories, 21, 68, 102, 108, 118, 170.
Manganese, 40, 119, 152.
Mangrove bark, 124.
Manitoba, 81.
Manjak, 91.
Maoris, 66.
Maritime Provinces, 78, 81.
Mauritius, Is., 122, 142, 154, 160, 167.
Mediterranean Sea, 16, 21; 96.
Melbourne, 54, 60, 157.
Mercury, 152.
Merino sheep, 58.
  wool, 59, 101, 135.
Mesopotamia, 24.
Michigan, Lake, 75.
Mildura, Victoria, 58.
Milford Sound, 65.
Millet, 38, 112.
Moab, 23.
Mohair, 101, 133.
Mohammedans, 3, 23.
Mombasa, 109, 160.
Monazite sand, 46.
Monsoon, 36, 53, 108, 116.

Montreal, 75, 82.
Montserrat, 90.
Mosquito, 32, 105, 117.
Mosul, 25.
Murchison Falls, 111.
Murray, R., 50.
Murrumbidgee, 50.
Mutton, 59, 130.

Nairobi, 110.
Napier, N.Z., 65.
Napoleon, 94.
Natal, 97, 100, 127, 142.
Natives, 3, 60, 66, 70, 81, 91, 107.
Nauru Island, 70.
Negroes, 2, 91.
Nelson River, 74.
New Brunswick, 80.
Newfoundland, 84, 87, 128, 131, 148, 151, 158, 166.
New Guinea, 49, 52.
New South Wales, 50, 57, 60.
New Zealand, 2, 63, 166.
Niagara, 75, 80, 106, 161.
Nickel, 78, 152.
Nicobar Islands, 121.
Nigeria, 115, 118, 161.
Niger, R., 118.
Nile, R., 111.
Nineveh, 25.
Northern Rhodesia, 106.
Northern Territory, 60.
North Island, N.Z., 63, 65.
North-West Territory, 81.
Nova Scotia, 78, 80.
Nutmegs, 46.
Nyasa, Lake, 108.
Nyasaland, 107.

Oats, 77, 127.
Ontario, and Lake, 75, 77, 80.
Oodnadatta, 157.
Orange Free State, 97.
Oranges, 58, 90, 106, 128.
Orkneys, Is., 9.
Ostriches, 102.
Otira Gorge, 158.
Ottawa, 82.
Ottawa, R., 75.

Pacific Coast Range, 72.
Pacific Ocean, 50, 69, 72, 74, 160.
Palestine, 21, 23.
Palm kernels, 118.
Palm oil, 118, 144.
Pamirs (mountains), 29.
Paper, 78, 86, 141.
Papua, 49, 52.
Para rubber, 46.
Parsees, 3.
Patkai Mountains, 31, 34.
Peaches, 58, 128.
Pears, 58, 77.
Penang, 43.
Pennines, 8.
Pepper, 46, 143.
Perim, 17.
Perth, W.A., 53, 60.
Petroleum, 40, 47, 57, 91, 149, 150.
Phœnix Islands, 70.
Phormium, 142.
Phosphate, 70, 122.
Piassava, 141.
Pietermaritzburg, 103.
Pigs, 78, 130.
Pineapples, 46, 58, 68, 90, 100, 128.
Platinum, 101, 152.
Plums, 77.
Polynesians, 70.
Population of Empire, 3, 28.
Port Augusta, 156.
Port aux Basques, 158.
Port Darwin, 157.
Port Elizabeth, 102.
Port Louis, 123.
Port of Spain, 92.
Port Stanley, 94.
Pretoria, 102.
Prince Edward Island, 21, 81.
Productions of Empire, 4.
Punjab, 27.

Quebec, 76, 80, 82.
Queensland, 56, 60.
Quinine, 144.

Railways, 59, 156.
Railways, gauge of, 59, 159.
Rain shadow, 54, 65, 76.
Raisins, 58.
Ramie, 133, 135.
Rattans, 46.
Rayon, 137.
Red Sea, 16, 18.
Religions of Empire, 3.
Resins, 46.
Rhodes, Cecil, 157.
Rias, 65, 86.
Rice, 25, 39, 46, 90, 110, 127.
Rift Valley of Africa, 109.
Ripon Falls, 111.
Rocky Mountains, 74, 76.
Rodriguez, Is., 123.
Ross, Sir Ronald, 32.
Royal Society of London, 70.
Ruapehu, Mt., 65.
Rubber, 40, 46, 68, 109, 111, 119, 121, 145.
Ruwenzori Mountains, 111.

Sago, 47, 127.
St Helena, Is., 93, 155.
St John, N.B., 82.
St John's, Newfoundland, 86, 158.
St Lawrence River, 74, 78, 84.
Salmon, 74, 131.
Salt, 57.
Samoa, 69.
Sandakan, 47.
Sarawak, 45, 47.
Saskatchewan, and R., 74, 81.
Sault Ste Marie, 161.
Scotland, 7.
Scott, Sir W., 7.
Seal oil and skins, 87.
Seasons in the Empire, 1.
Sennar, 112.
Sesame, 112.
Seychelles, 123.
Shale oil, 57.
Sheep, 58, 66, 77, 94, 101, 106, 112.
Shetlands, Is., 9.
Shirè River, 108.
Sierra Leone, 115, 118.
Signal Hill, 84.
Silk, 133, 134, 137.
Silver, 57, 66, 78, 86, 152.
Singapore, 2, 43, 46, 160.
Sisal, 90, 110, 121, 142.
Sleeping sickness, 105.
Sobat, R., 111.
Solomon Isles, 68.
Somaliland, 112.
Southern Alps, N.Z., 65.
Southern Rhodesia, 105.
South Georgia, 95.
South Island, N.Z., 63, 65.
Spices, 90, 143.
Spruce, 140.
Stewart Island, 63, 86.
Straits Settlements, 43.
Sudan, 111.
Sudbury, Ontario, 78.
Suez Canal, 16-18.
Sugar-beet, 128.
Sugar-cane, 25, 39, 46, 69, 90, 100, 110, 123, 127.
Sulaiman Mountains, 29, 34.
Swaziland, 102.
Sydney, N.S.W., 53, 60, 157.

Tamils, 33.
Tanganyika, 108, 172.
Tannins, 142.
Tapioca, 46, 127.
Tasmania, 49, 52, 54, 60.
Taupo, Lake, 65.
Tea, 40, 108, 129.
Teak, 40, 46, 140.
Telegraph cables, 93, 154.
Textile fabrics, 133.
Thar (Desert), 37.
Tigris, R., 24.
Timber, 78, 86, 140.

Time in British Empire, 1.
Tin, 46, 101, 119, 151.
Tobacco, 106, 108.
Tobago, Is., 88.
Tomatoes, 69.
Tonga Islands, 69.
Toronto, 82.
Townsend, Mt., 50.
Transvaal, 97, 101, 105.
Trinidad, Is., 88, 92, 160.
Tristan da Cunha, Is., 94.
Trochus shell, 69.
Tropic of Cancer, 34, 88, 115.
Tropic of Capricorn, 52, 55.
Tsetse fly, 105.
Tundra, 74, 76.
Turks, 19.
Turks Islands, 88.

Uganda, 110.
Union Islands, 70.
Union of South Africa, 97, 101, 166.

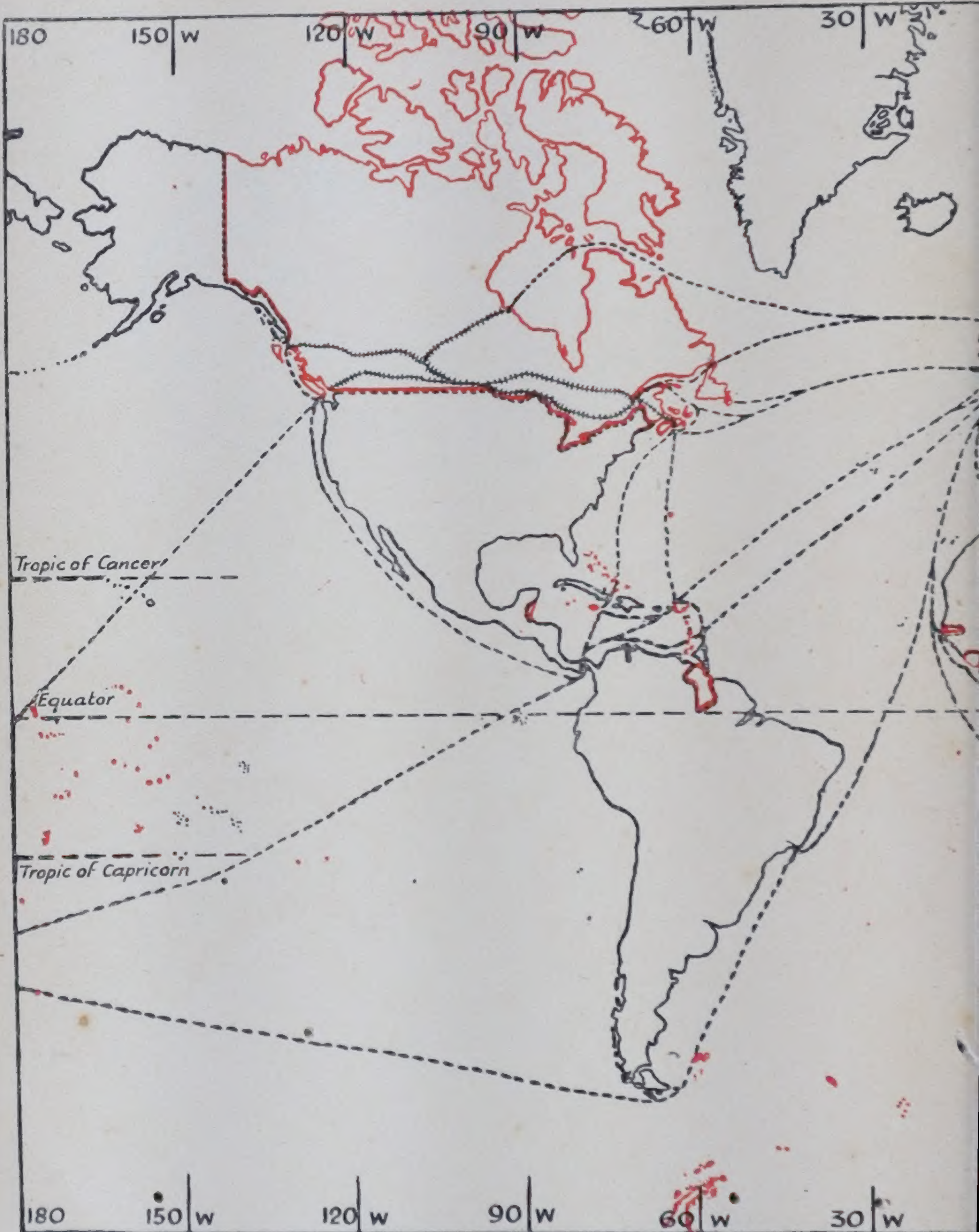
Valencia, Is., 65.
Vancouver (city), 82.
Vancouver Island, 75, 78.
Vanilla, 124, 144.
Veldt, 97.
Victoria, Australia, 54.
Victoria Falls, 106.
Victoria, Hong Kong, 47.
Victoria, Lake, 108, 111, 160.
Victoria, Vancouver, 82.
Volcanoes, 63, 68, 122.

Waikato, R., 65.
Wales, 8, 21.
Wanganui, N.Z., 66.
Water-power, 80, 86, 97, 111, 148, 150.
Wei-Hai-Wei, 48.
Welland Canal, 161.
Wellington, N.Z., 66.
Wembley Exhibition, 57, 65, 128.
West Indies, 88.
Whale fishing, 95.
Wheat, 9, 23, 25, 38, 58, 66, 77, 100, 107, 110, 126.
"White" coal, 80, 150.
Windward Islands, 88.
Winnipeg, 76, 82.
Winnipeg, Lake, 74.
"Wireless," 70, 84, 93, 95, 155.
Wood-pulp, 78, 86, 141.
Wool, 59, 66, 101, 133, 135.

Yukon, 81.

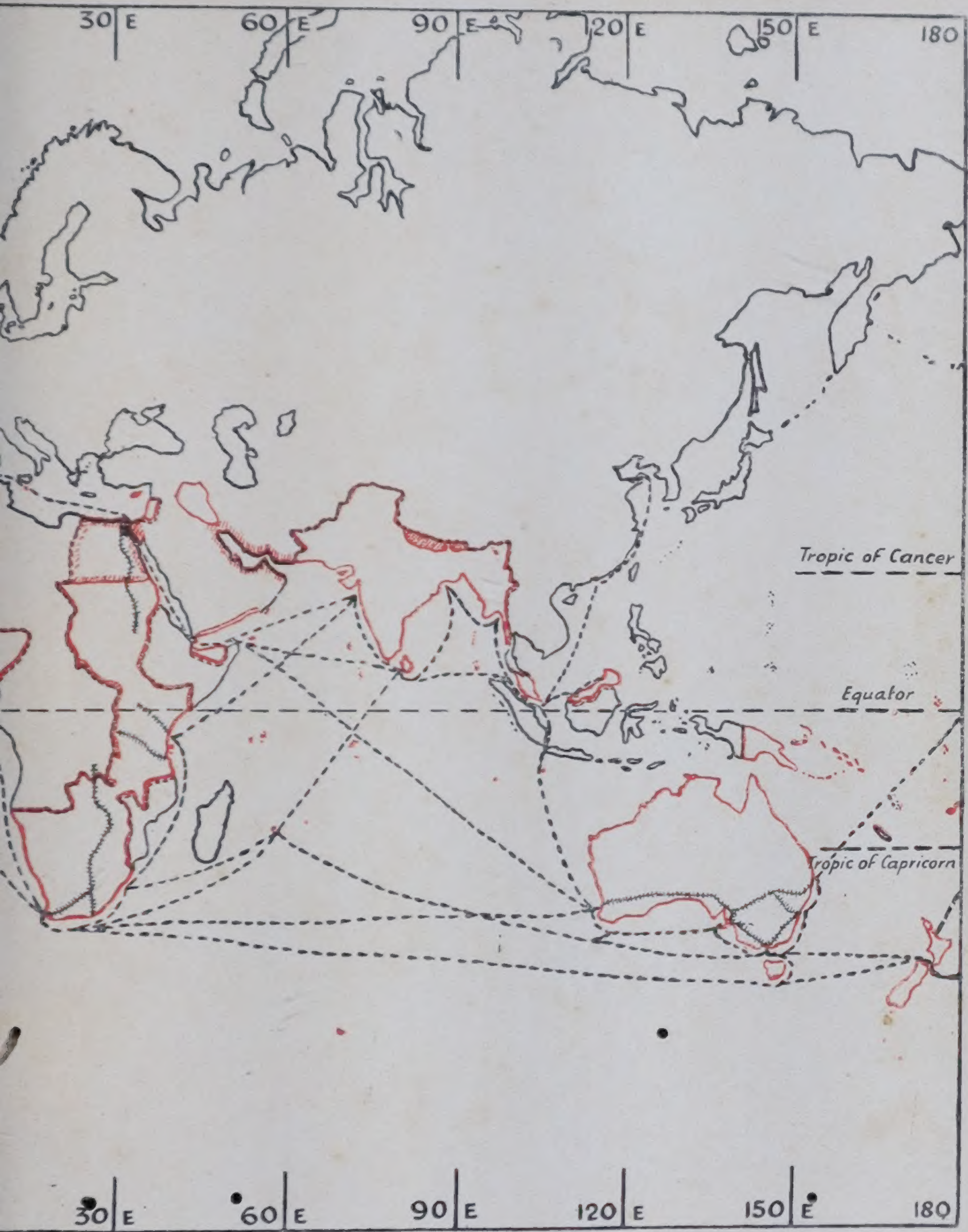
Zambezi River, 106.
Zanzibar, 113, 144.
Zinc, 57, 80, 107, 151.
Zomba, 108.

R. B. A. N. M'S EDUCATIONAL CHARITIES.
No.......................
Date.......................
BANGALORE.



Some *Main Highways* of th

This Map should be compared with the one of the World (front end-paper), an
may be used as a Tes



Empire. On Mercator's Projection.

with those of the different parts of the Empire throughout the book. The map
map in many ways.